

ACORN is a trademark of  
Acorn Computers Limited

April/May 1984  
An ECC Publication

# Acorn programs

95p

London  
Book Fair  
special  
offer

25 great new programs for the BBC B and Electron

**MAPPING YOUR  
WAY TO THE  
HIDDEN GOLD**

NEW  
SOFTSCOPE  
SPECIAL



**SPECIAL OFFER!**  
Deduct £1 per cassette or disc when ordering 2 or more.

**THE BEST BBC MICRO SOFTWARE**  
PRODUCED BY AN INDEPENDENT SOFTWARE HOUSE  
• TOP QUALITY MACHINE-CODE PROGRAMS •

**BBC**



**BUNGEE BACK (32K)** £7.95  
Beautifully detailed animation (the best we've yet seen!) as Quasimodo leaps over the ramparts dodging rocks and arrows, swinging on ropes, and avoiding the guards' spears as he attempts to rescue Esmeralda. Twelve different screens of action! This program is sold under licence from Century Electronics Ltd; we have exclusive rights to its sale for use on the BBC micro.

(For use with KEYBOARD or JOYSTICKS).

"It is an extremely good version of the arcade game... thoroughly recommended." ... BEEBUG MAGAZINE



**CRAZY PAINTER (32K)** £7.95  
The only full-feature version available for the BBC micro. On the first screen, you take the part of a monkey being chased by African tribesmen. If you manage to survive by painting-in all the squares, the bonus screen features the monkey trying to reach his bunch of bananas. After that, you take control of a paint-roller and each square painted-in adds to your score. But beware... the teddy-bears are now in hot pursuit. Superb animation and sound-effects. (For use with KEYBOARD or JOYSTICKS).

••• NEW RELEASE •••



**2002 (32K)** £7.95  
A space docking simulator using 3D graphics to model the motions and responses of the ORION 4 spacecraft. Your mission is to pilot the shuttle to a "soft dock" with the space station. PITCH, YAW, ROLL, FORWARD, LATERAL and VERTICAL engines are provided together with orbit manoeuvring booster engines. 6 skill levels provide for the completely inexperienced pilot as well as the fully-fledged commander.

••• NEW RELEASE •••



**ALIEN DROPOUT (32K)** £7.95  
A novel and unusual program. Arcade-action with this enthralling multi-stage shooting game. You have to shoot the aliens out of their "boxes" before the "boxes" fill up. Once full, the aliens fly down relentlessly, exploding as they hit the ground. Hi-score, rankings, and sound effects. (For use with KEYBOARD or JOYSTICKS).

"... this game is as good as any on the market." ... HOME COMPUTING WEEKLY.



**FAIRGROUND (32K)** £7.95  
An exciting target-shooting game! Bonuses are scored for spelling out the word FAIRGROUND by hitting the appropriate target letters, and for shooting all the targets. Extra bullets are obtained by shooting the numerical targets, but watch out for the "smileys" who are intent on stealing your bullets. Music, sound effects, hi-score, and rankings.

••• NEW RELEASE •••



**CENTIPEDE (32K)** £7.95  
Incredible arcade-style game featuring mushrooms, snails, flies, spiders, and the centipedes of course. Excellent graphics and sound. 6 skill levels, hi-score, rankings, bonuses, and increasing difficulty as the spiders become more lively and the number of mushrooms increases. (For use with KEYBOARD or JOYSTICKS).

"Visually this game compares well with the arcade version, being colourful and clear." ... YOUR COMPUTER



**ROAD RUNNER (32K)** £7.95  
The only full feature machine-code version available for the BBC micro. Features include: scrolling screen, radar display, 3 pursuing cars, checkpoint flags, fuel gauge, smoke screens, 6 skill levels, rankings, increasing difficulty, and sound effects. (For use with KEYBOARD or JOYSTICKS).

"I enjoyed the game very much... the graphics are excellent... movement is smooth and fast as only machine code can produce." ... HOME COMPUTING WEEKLY



**FROGGER (32K)** £7.95  
Not just another version of Frogger... this is the arcade-action version that you've been waiting to see. Graphically brilliant with gaping-mouthed crocodiles, diving turtles, flies, and frogs that flex their legs as they jump along. Increasing difficulty, and responsive controls. (For use with KEYBOARD or JOYSTICKS).

"... very good indeed... fast flicker-free graphics and a frog that really hops!" ... BEEBUG MAGAZINE

**ALSO AVAILABLE**

SPACE FIGHTER (32K)	£7.95
GALAXIANS (32K)	£7.95
INVADERS (32K)	£7.95
FRUIT MACHINE (32K)	£7.95
CRIBBAGE (32K)	£6.95
PONTOON (32K)	£6.95

**DEALERS... DEALERS... DEALERS...**

Our software is now available at all good dealers including:-

**W.H. SMITH** - Selected branches.

**JOHN MENZIES** - Selected branches.

**BOOTS** - Selected branches.

**ELTEC COMPUTERS**, 29 Ivesgate, Bradford.

**MICRO MANAGEMENT**, 32 Princes Street, Ipswich

**WEST COAST PERSONAL COMPUTERS**, 47 Kyle Street, Ayr.

**MICROSTYLE**, 29 Belvedere, Lansdown Road, Bath.

**ELECTRONEQUIP**, 36-38 West Street, Fareham, Hants.

**3D COMPUTERS**, 230 Tolworth Rise South, Tolworth, Surrey.

**GTM COMPUTERS**, 864 York Road, Leeds.

+ MORE THAN 300 OTHER DEALERS THROUGHOUT THE U.K. AND OVERSEAS.

**ADVENTURE GAMES**

**COLDITZ ADVENTURE (32K)**

..... £7.95

**STAR TREK ADVENTURE (32K)**

..... £7.95

**LOST CITY (32K)** £7.95

**GIDEON'S GAMBLE (32K)** £7.95

**WE PAY UP TO 20% ROYALTIES FOR HIGH QUALITY BBC MICRO, ELECTRON AND ORIC-1 PROGRAMS**



**SUPERIOR SOFTWARE LTD.**  
Dept. AP3,  
69 Leeds Road, Bramhope, Leeds  
Tel: 0532 842385

ALL OUR PRICES ARE INCLUSIVE OF V.A.T. AND P. & P.

**DISC SOFTWARE AVAILABLE NOW**

All our programs are ready for despatch on 5 1/4" discs at £11.95 each.

**OUR GUARANTEE**

- (1) All our software is available before we advertise.
- (2) All our software is despatched within 48 hours by first-class post.
- (3) In the unlikely event that any of our software fails to load, return your cassette or disc to us and we will immediately send a replacement.



## Cover of professional software expanded

WELCOME to the third issue of *Acorn Programs*. In this issue we expand our coverage of professional software for the BBC and Electron. One page remains devoted to reviews of games software, while a second is included containing reviews of educational software.

All programs published this month have been contributed by readers of *Acorn Programs*. Programs which are submitted to us for consideration are all tested on both BBC and Electron computers.

The best programs submitted are then listed from our working office copy for publication in the magazine. All listings published are produced in this way, so that it is certain that programs will work on the machine for which they are intended, without amendments.

Please remember, when submitting programs for consideration, that they must be recorded on cassette or disc. Please state clearly for which computer your programs are intended, and enclose a stamped, addressed envelope if you would like them returned.

*The Editor*

	Page
<b>News</b>	5
<b>Softscope</b>	7
<b>Softscope Special</b>	9
<b>Errors</b>	55
<b>London Book Fair</b>	58
<b>Special Offer</b>	58
<b>Electron and BBC Model B</b>	
<b>3D Maze</b>	12
<b>Maths</b>	14
<b>Protector</b>	20
<b>Keyboard</b>	24
<b>Octal Characters</b>	27
<b>Gold Search</b>	28
<b>High Low</b>	31
<b>Converter</b>	32
<b>Long Multiplication</b>	40
<b>Long Division</b>	41
<b>Calculator</b>	42
<b>Examiner</b>	51
<b>In Order</b>	52
<b>BBC Model B</b>	
<b>Monster Hunt</b>	10
<b>Bomber</b>	16
<b>Driver</b>	17
<b>Definer</b>	19
<b>Gallery</b>	36
<b>Number Game</b>	39
<b>Water Distillation</b>	44
<b>Pontoon</b>	47
<b>Typing Practice</b>	49
<b>Bank Robber</b>	50
<b>Golf</b>	55
<b>Simon's Game</b>	56

Managing editor Nigel Clark Assistant editor Rebecca Ferguson Managing production editor Harold Mayes MBE Group art director Chris Winch Group advertisement manager John Ross Advertisement executive Ajay Patel Editorial assistant Colette McDermott Production assistant Dezi Epaminondou Assistant managing director Barry Hazel Managing director Terry Cartwright Chairman Richard Hease.

*Acorn Programs* is published bi-monthly by ECC Publications Ltd.

The views expressed herein are not necessarily the views of Acorn Computers Limited

Telephone, all departments: 01-359 3525. If you would like to contribute to *Acorn Programs*, please send programs on disc or cassette to *Acorn Programs*, ECC Publications, 196-200 Balls Pond Road, London N1 4AQ. We cannot undertake to return them unless a stamped, addressed envelope is enclosed. We pay a basic rate of £15 for the copyright of each program published.

©Copyright 1984 ECC Publications Ltd. ISSN 0265 4660. Printed and typeset by Cradley Print PLC, Warley, West Midlands. Distributed by Spotlight Magazine Distribution Ltd, 1 Benwell Road, Holloway, London N7. 01-607 6411.



# Contest champion gets development go-ahead

FOLLOWING its sponsorship of the World Chess semi-finals late last year, Acornsoft Ltd, in conjunction with the British Go Association and *A & B Computing*, sponsored a Go Tournament, in which eight BBC computers and their programmers competed for the title of Champion Computer Go player of the World.

The title was won by Bronislaw Przybyla, a freelance computer consultant from Wiltshire, who developed his Go program especially for the competition. Przybyla won £1,000 and is now working with Acornsoft to produce a commercial Go-playing



Bronislaw Przybyla, right, is congratulated by David Johnson-Davies, managing director of Acornsoft.

game, based on his winning program, which is due for launch in the near future. Acornsoft managing director David Johnson-Davies comments:

"We hope the launch of a

commercial program, which will be good enough to play a moderately strong game against a beginner will stimulate more people in the U.K. to take up Go themselves and help to popularise the game".

## Nap hand eases BBC B input

ALTHOUGH the BBC micro has a conventional, typewriter-style keyboard which is easier to use than that of many other microcomputers, it can be used to its full advantage only by an exper-

enced touch typist. Users without typing experience, or young users whose fingers cannot span the requisite number of keys, can find typing-in programs an arduous process.

Microwriter has produced the Quinkey keyboard, which uses only five keys and an extra shift key in various combinations to type any of the keys on the BBC B keyboard.

As the fingers of one hand cover the keys continually it is necessary to type without looking at the keyboard so that the user is free to look at a program listing.

The Quinkey keyboard and interface pack are available, for the right hand only, from Microwriter Ltd, 31 Southampton Row, London WC1B 5HJ for £48.

## Exhibitions grow in popularity

COMPUTER SHOWS and exhibitions are becoming bigger and more popular. The WHICH COMPUTER? Show, held annually at the National Exhibition Centre, Birmingham, has demand for space at the 1985 show so great that the show, which attracted 40,000 visitors in January, will be expanding into a third hall in 1985.

Prior to that are The Electron and BBC Micro User Show, at the Westminster Exhibition Centre, London from March 29 to April 1; the fifth London Computer Fair, at Central Hall, Westminster, April 19, 21 and 23; The Electron and BBC Micro User Show, at Alexandra Palace, London from July 19-

22 and at UMIST, Manchester from August 31-September 2, Alexandra Palace from October 25-28 and Westminster Exhibition Centre, London from December 6-9.

THE ELECTRON competition in the first issue of *Acorn Programs* was won by Graham Granger of Leatherhead, Surrey for his program **Protector**, a smooth-running, arcade-action game which will run on either the Electron or BBC B computer.

Granger has been programming for some years. He bought a ZX-81 when it was launched in 1981. At Christ-

mas, 1982 he upgraded to a BBC computer but had to share time on it with other members of his family.

"Now I have an Electron", he says, "I will be able to spend more time programming and will be able to keep the computer in my bedroom."

He began writing Protector early last summer. At that time it was a simple game,

## Cassette to disc service

ACORN computer owners who have upgraded from cassette recorder to disc drive often find that they are left with professional cassettes they cannot transfer to disc. Options open to such owners are to buy a new disc copy of the program, or to pirate that program.

Acornsoft, the software division of Acorn Computers, has introduced a new alternative. If you have an Acornsoft cassette which is also available on disc, return the cassette to Disc Replacement Service, Acornsoft Ltd, c/o Vector Marketing, Dennington Industrial Estate, Wellingborough, Northamptonshire, enclosing half the price of a disc copy and your cassette will be replaced by a disc.

Thus the owner of Magic Garden on cassette, which costs £9.85, could return the cassette, pay an extra £5.75, and acquire the disc copy which retails normally at £11.50.

Acornsoft believes it to be the first cassette-to-disc exchange of its kind to be launched by a home software supplier. Computer owners, faced with a choice between paying £16.60 for one program or switching from disc to cassette to use their old software, may well expect it to be the last exchange offer of its kind as well.

## Protector wins Electron

with aliens flickering across the screen. It took six months to develop to its full form, in which four types of aliens menace a mothership and its protector in various ways.

Protector beat a variety of other programs entered for the competition to win. The majority of them were games programs, of which Protector was judged to be the most exciting and professional.

# BBC SOFTWARE

RICKSOFT

\* Arcade Games \* Adventures \*  
\* Educational \* Utilities \* ROMS \*  
\* Languages \* and more

**HIRE**

WITH OPTION TO

**BUY**

Membership £10

For catalogue and membership form send name

and address to

Ricksoft, Dept. L, 78, Warren Drive, Hornchurch,  
Essex RM12 4QX.

Tel: (04024) 47722

Most from £1  
per fortnight

With up to  
25% discount

## DATATECH TOP QUALITY PRINTERS ROCK BOTTOM PRICES

EPSON RX80	£219 + VAT
EPSON RX80 F/T	£248 + VAT
EPSON FX80 F/T	£328 + VAT
EPSON MX100 F/T	£378 + VAT
EPSON FX100 F/T	£438 + VAT

We also have large stocks of  
sundries including ribbons  
fanfold paper roll paper  
continuous labels  
dust covers etc.

For free brochure and discount  
order form write now to

**DATATECH LTD (AP)**  
8 BELLINGHAM CLOSE  
BURY LANCS  
BL8 2TU  
TEL: 061-764 5579

# Silverlind

**NEW**

**MASTER DIET PLANNER** 48K Spectrum £11.95

The ultimate in diet programs, the MASTER DIET PLANNER contains details of calories, protein, vitamins and other nutrients for 681 foods! The MASTER DIET PLANNER will help you to plan a well-balanced diet, including options to restrict fats, cholesterol and salt, or to increase fibre intake - at the same time offering maximum choice of foods. Instruction and Recipe Book included.

### ADVENTURE GAMES

**HAUNTED HOUSE** BBC/B £6.00

An excellent introduction to adventure games. Can you survive the perils of the castle and the graveyard, to collect the 6 treasures AND rescue the princess?

**JOURNEY TO THE STARS** BBC/B £6.50

You have been sent on a dangerous mission to find 10 treasures - but how are you going to get back? Beware of the Antiflavian MegaTiger and venomous lizard woman!

**PASSPORT TO DEATH** BBC/B £6.50

From the planet Zandra, you have been sent to Earth, a strange place with stranger inhabitants! Finding treasures is not enough - without extra fuel, your starship will not get you home.

SILVERLIND LTD. 156 Newton Road, Burton-on-Trent  
Staffs DE15 0TR. Tel Burton (0283) 63987

ALL PRICES INCLUDE POST & PACKING & VAT



### EDUCATIONAL PROGRAMS

**ENJOY MATHS**

48K Spectrum £8.00  
A suite of 4 highly motivating programs for the 8 - 14 age range: tables, simple equations, polygons and areas. The programs combine explanation with tests and make good use of colour and sound.

**TOWNTTEST**

BBC/B £6.50  
Identify the major towns and cities of England, Scotland and Wales, displayed on a high-resolution map. Suitable for all age groups and for school or home use (try it as a quiz for all the family!)

**BIOLOGY**

BBC/B £12.50  
A major collection of programs, written by a GCE examiner, designed to aid the understanding of Biology to CSE, 'O' and 'A' Level standards. These programs - comprising text, animated diagrams and questions - are available in one package and are suitable for individual study at school or in the home. Teachers will also find material suitable for class demonstration.

### STRATEGY GAMES

**PENTILES**

BBC/B £6.95

**REVERSI (Othello)** BBC/B £6.95

*We require good programs to increase our catalogue and pay high royalty rates for published material.*

# Game of the book is merely competent

THE PEN and The Dark is an adventure game, based on the story of the same title, which is provided in an accompanying book. Despite being hailed as a classic on the packaging, the story is not one of the better examples of science fiction on the market, but it is quick and easy to read and provides the player with vital clues and hints.

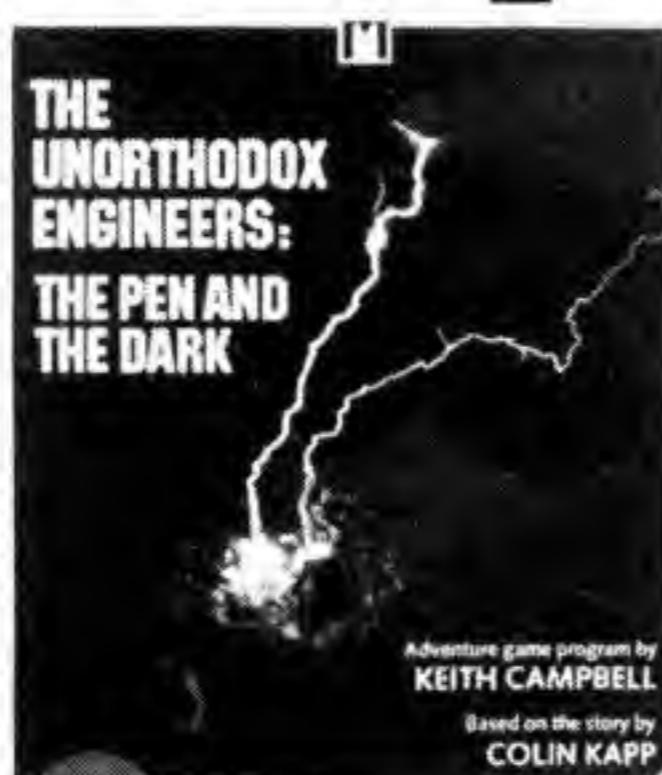
The game is a text adventure. A description of each location is printed at the top of the screen and so those who lose the top line of the BBC screen habitually because their television set is too small would be well-advised to take that into account before loading the program, as the programmer has not taken it into account and it is infuriating to attempt to play an adventure without a full description of locations.

## The Pen and The Dark

## Adequate adventure

WRITING a successful adventure game is a complicated matter. The complexities of programming are not the only problem. The beginning of the game, at least, must be simple enough to encourage a beginner, while being complicated enough to persuade a player with experience to continue. A wide range of vocabulary should be available to the player, together with a variety of options linked by a coherent storyline.

**Gideon's Gamble** is an adequate adventure game; there is a vague story line, a limited vocabulary and a variety of problems to solve. It is, however, uninspiring. Once a variety of objects has been collected there is little incentive to sail away with them to continue the quest. There is also the uncomfortable feeling that the author is making fun of the player, as such



is a competent adventure game, with a wide variety of locations to visit, objects to collect and problems to solve. £9.95.

More exciting screen use would add to the game, as would a more exciting use of the adventure format. Adventures do not have to become word games which must be solved to move from one area to the next; the pity is that an uninspiring adventure game can give people new to adventuring that impression.

The Pen and The Dark is produced by Mosaic Publishing Ltd, 187 Upper Street, Islington, London for the BBC Model B and costs

## New ideas on old and tried theme

**MICROBE** — £7.95, Virgin Games — **Attack on Alpha Centauri** — £7.95, Software Invasion — and **Transistor's Revenge** — £7.95 Soft-spot — are all games of the if-it-moves-shoot-it variety for the BBC Model B.

**Attack on Alpha Centauri** uses three-dimensional graphics. The landscape looks realistically-contoured and the attackers fly forward, increasing in size as they do so.

The aim is to kill all the deadly wasps before the player loses all three lives by being stung.

**Microbe** is a game in the same vein. The object is to attack an alien through its bloodstream, which means blasting the descending cells, spores, aminos and ribosome before they hit the player.

**Transistor's Revenge** does not contain such good graphics as the other two games but what it loses in that area it compensates for in originality.

The components approach along the various data lines and can be shot only along those lines.

Another complication is the pulses of energy which occasionally move very quickly along a data line and prove deadly unless they are avoided.

## Worst of all worlds

**Pharaoh's Tomb**, instead creates the impression of a series of identical rooms with different names, not all of which are spelt correctly. The graphical game and adventure element, used as you fight The adventure element, enemies or collect coins, is meant to summon the image explained insufficiently and of a convoluting **Pharaoh's** on a par with the simplest amateur games.

Movement from one chamber to another is achieved only after finding a series of numbers in a Mastermind-type fashion, or by solving an anagram. The number puzzles are very easy, while the anagrams vary from easy to impossible.

**Pharaoh's Tomb** is produced for the Electron by A&F Software, Unit 8, Canal Side Industrial Estate, Woodbine Street East, Rochdale, Lancashire OL16 5LB.

## Addicted to Chuckie Egg

MOVE ROUND the farm-yard, collecting as many eggs and piles of grain as possible. That involves going up and down ladders, falling down holes and avoiding hungry geese, which will eat the corn if they reach it first — or you, if you fail to evade them. Once you have cleared one level you move to the next that you can complete the game without several hours' practice. The main difficulty is in lining-up your figure and performing complex movements to reach the last eggs. Movements must be very precise and there is nothing more frustrating than being eaten when you are within a pixel of safety. A difficult but addictive slow enough to make the game, Chuckie Egg is produced by A&F Software, Unit 8, Canal Side Industrial Estate, Woodbine Street East, Rochdale, Lancashire.

BBC Model B  
(any OS, Basic I/II)

£9.95  
(inc. VAT and p.p.)

# QUAL-SOFT "LEAGUE DIVISION ONE"

## THE THINKING FAN'S SOCCER GAME

Are you a soccer supporter? How much do you **REALLY** know about the game? Can you take a side, newly promoted to Division 1, and build it into a genuine contender for the 1st Division Championship? Can you select the right tactics and team to hold Liverpool at Anfield, and the right ones to improve your goal difference at home to Wolves? Can you "read" a match well enough to see your own team's weaknesses, and then have you the skill to exploit the transfer market to cure them? In short: Would you make a successful 1st Division team manager?

### WELL HERE'S YOUR CHANCE TO PROVE IT!

- \* You have 5 seasons, 42 League matches/season.
- \* Opposition: 21 of the 22 current 1st Division sides.
- \* Each team has its own playing style and strengths.
- \* Each team has home and away match tactics.
- \* Define your own tactics. Tactics really work because:-
- \* A true 90 min. match simulation, (3½ min. on your Beeb).
- \* Graphics representation: How the match goes.
- \* Realistic scoring, injuries, red and yellow cards.
- \* Substitution and team adjustments for injuries.
- \* Tactical substitution with repositioning of players.
- \* Transfer market, real (devious) price bargaining.
- \* League position, playing record updated after each match.
- \* 25 to 30 hours for a game unless relegated.
- \* Simple, quick SAVE/LOAD game facility.

### CAN YOU GET YOUR TEAM'S NAME ON THE SILVERWARE?

#### QUAL-SOFT

Dept. AP3  
18, Hazelmere Rd.,  
Stevenage,  
Herts.  
Tel: (0438) 721936

Please send me ..... copie(s) of  
LEAGUE DIVISION ONE.  
I enclose cheque/postal order to the  
value of £ ..... or debit  
my Access/American Express  
Card No. ....

NAME: .....

ADDRESS: .....

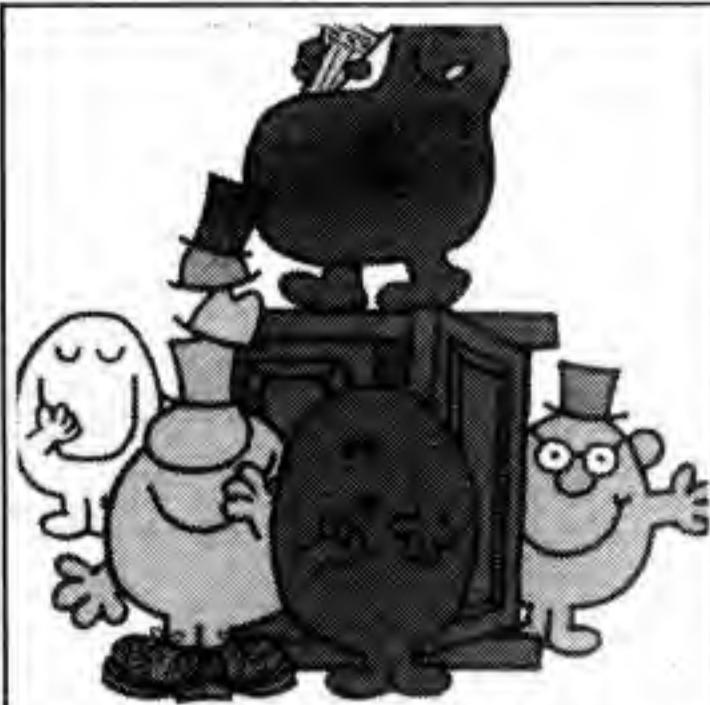
.....

SIGNATURE .....

THE COMPUTER USERS CLUB  
69 HADLOW ROAD,  
WELLING,  
KENT.  
DA16 1AX.  
TEL: 01-311 2555

At our Hadlow Road premises we stock a complete range of accessories for the BBC micro including monitors, printers, plotters, cassette recorders and a wide selection of disc drives and other peripherals from leads to dust covers at very competitive prices. This service is provided to compliment the facilities provided by the Computer Users Club and both members and the general public are always assured of a warm welcome and helpful assistance. Obviously some of our present and hopefully future members and clients live some distance from us so we have available a mail order service. Postal/telephone, assistance, ordering and sales is available worldwide.

Our software available on both tape and disc comprises a wide selection from games to business programs. We currently have available Torch Z80 Disc Packs complete with a free comprehensive software package comprising Perfect Calc:- Spread sheet analysis. Perfect Writer and Perfect Speller:- A word processing with a spelling checker facility. Perfect Filer:- A database package. To compliment this a utilities disc, a complete package in its own right is included. The Disc Pack transforms the BBC Computer into a competitive business machine providing a total storage capacity of 800k on dual drives and the facility to run CP/M business software through the built in compatible CP/N Operating System making it a very worthwhile package at £730 + VAT. This package can be seen connected to the BBC Computer and demonstrated with the other systems currently available an open invitation without obligation is extended to all and we look forward to seeing you at our Hadlow Road premises in the very near future.



## Attractive Mr Men

**FIRST STEPS** with the Mr Men contains four programs, aimed at four-to-eight-year-olds. They are intended to develop ideas of direction, shape matching and recognition skills, and letter recognition.

The games are very simple. Mr Forgetful's Wardrobe Game involves opening wardrobe doors, two at a time, to help Mr Forgetful locate pairs of clothing. It is the attention to detail which makes these programs into learning aids attractive to children rather than merely simple-to-write programs.

The packaging is colourful, containing pictures of the Mr Men. The keys to use are marked by a Mr Man card and the instructions are in a booklet complete with four appropriate Mr Man stories written by Roger Hargreaves. The games centre on Mr Greedy, Mr Silly and Mr Forgetful.

**First Steps with the Mr Men** is produced for the BBC B by Mirrorsoft, Holborn Circus, London EC1.

# World Wise database lacks versatility

PRODUCERS of educational software for the BBC computer appear inordinately fond of creating a database, that, with due use of reference books, students will be able to add new items to the database, distinguishing each item from those which have appeared previously by means of questions.

Databases are useful for classification purposes, for learning to distinguish quickly between similar things, for encouraging the use of books, and for learning long strings of facts. Only one database program, however, is needed to cover those points. **World Wise** is limited because it

In **World Wise** there are two programs, one dealing with the U.K. and one with the world. Each program contains several headings, including rivers, lakes, flag and

confines its subject to geography and does not contain a complete database.

**World Wise** is produced by Bourne Educational Software, Bedfield Lane, Headbourne Worthy, Winchester and costs £7.80 plus VAT on cassette and £9.55 plus VAT on disc.

## Learning by sight

NOTHING but praise should go to Microtrust Software for **All Fingers Go**, which is a superb example of educational software for the BBC B. The two cassettes which arrive with the package take the user stage by stage from the level of complete novice to that of confident touch typist.

On-screen are displayed a typewriter keyboard, together with finger outlines which move to the correct positions as you type. The student is first taken through an exercise by the key to be typed flashing and a finger being shown pressing it. Once that key has been pressed the program moves to the next until a line of text is printed.

That should then be copied exactly and, when it has been copied, the number of errors made is displayed, followed by the student's speed in words per minute, if appropriate. The performance can also be analysed.

The program combines the typewriter-style keyboard of the BBC B, a clear on-screen display, a carefully-graded series of lessons and regular performance analysis to produce a clear, easy and enjoyable introduction to touch-typing. It is produced by Microtrust Software, National Extension College, 18 Brooklands Avenue, Cambridge and costs £14.95.

## Corrections needed

**VECTORS** maths tutor for the BBC B and Electron is aimed at students of O level additional mathematics or A level mathematics. In a series of 14 lessons the program with practice.

Answering questions based on diagrams shown on-screen can be difficult for those used to working on paper but the difficulty can be overcome by practice.

When a question is answered incorrectly it would be helpful to have the correct answer and the reason for it displayed on screen, but that facility is not included in the program, meaning that either they are tested thoroughly in a teacher must be consulted a series of multiple-choice or the lesson must be re-run questions. Lessons can, of course, be repeated several times until all the points in them have been fully understood.

**VECTORS** costs £9.95 and is produced by Salamander Software, 17 Norfolk Road, Brighton, East Sussex.

## Taking the Tree route

**TREE OF KNOWLEDGE** allows its user to build, list and save a database on the BBC computer. Building the database is achieved by entering the names of two objects to be added and providing a question, the answer to which will distinguish between them. The procedure can be repeated until a substantial database has been created.

The database can then be

used as a type of guessing game in which the computer chooses an item at random and provides clues from among the questions.

The most useful application of the program is demonstrated in the class database with the program. It is a classification of the animal kingdom, for use by biology students. Using it in that way for identification purposes could be very useful

The program contains several spelling mistakes in its databases and it is to be hoped that they will be removed in future copies.

**Tree of Knowledge** is produced by Acornsoft Ltd, 4a Market Hill, Cambridge CB2 3NJ and costs £9.20.

10 REM \*\* Monster Hunt .. a game to test your powers of observation \*\*

20 REM \*\* PART 1 ... this part must be used to load and run Part two of this game \*\*

30 REM \*\* CLS 1984 S.W. Lucas \*\*

40 REM \*\* define characters for graphics \*\*

50 VDU23,224,62,62,8,127,107,9,93,73

60 VDU23,225,65,8,8,8,127,93,9,93

70 VDU23,226,73,73,93,20,20,20,54,99

80 VDU23,227,60,36,61,107,11,10,6,2

90 VDU23,228,0,242,250,250,25

100 VDU23,229,0,1,3,15,31,63,11,5,255

110 VDU23,230,0,128,192,240,248,252,256,255

120 VDU23,231,0,0,0,65,66,100,104,255

130 VDU23,232,0,0,0,130,66,38,2,255

140 VDU23,233,1,3,5,1,3,5,9,9

150 VDU23,234,128,192,160,128,192,160,144,144

160 VDU23,235,31,38,15,3,3,3,4,8

170 VDU23,236,248,120,248,192,192,192,32,16

180 VDU23,237,104,100,66,65,64,6,6,6

190 VDU23,238,22,38,66,130,2,0,0,0

200 VDU23,239,11,10,10,10,10,10,2,2,14

210 VDU23,240,208,80,80,80,80,6,4,64,112

220 VDU23,241,255,192,191,144,152,148,145

230 VDU23,242,255,3,253,9,25,41,73,137

240 VDU23,243,241,146,148,152,144,191,192,255

250 REM \*\* now choose the colours \*\*

260 VDU23,244,143,73,41,25,9,25,3,3,255

270 REM \*\* erase character \*\*

280 VDU19,3,0,0,0,0

290 VDU23,245,255,255,255,255,255,255,255,255

300 REM \*\* monster 1 = VDU229,220,10,8,8,235,236

310 REM \*\* monster 2 = VDU 231,232,10,8,8,237,238

320 REM \*\* monster 3 = VDU 233,234,10,8,8,239,240

330 REM \*\* monster 4 = VDU 241,242,10,8,8,243,244

340 REM \*\* monster 5 = VDU224,10,8,225,10,8,226

350 REM \*\* monster 6 = VDU227,228

351 REM \*\* define Envelopes for the sound effects of the main program \*\*

352 ENVELOPE1,5,1,20,8,200,0,0,126,0,0,-126,126,126

353 ENVELOPE2,2,6,0,0,255,0,0,126,0,0,-126,126,126

354 ENVELOPE3,3,6,0,2,255,1,0,126,0,0,-125,125,125

355 ENVELOPE4,16,16,1,1,200,0,0,126,0,0,-126,126,126

360 MODE1

370 VDU19,0,7,0,0,0

380 VDU19,1,1,0,0,0

390 VDU19,2,4,0,0,0

400 VDU19,3,0,0,0,0

410 COLOUR1

420 PRINTTAB(12,10)"Monster Hunt"



430 PRINT'"SPCK73"<C> S.W. Lucas 1984"

440 REM \*\* now flush the keyboard buffer

450 \*FX15,0

455 SUIUND1,4,30,150

460 COLOUR 2

470 PRINT"This is a game which will test your powers of observation." "There are 36 monsters hiding from you. You must try and seek them out by firing your Phaser gun at two locations on the board."

480 COLOUR3

490 PRINT"When you fire your Phaser, the monster will appear and you must try to identify the locations of the matching monsters."

500 COLOUR 1

510 FOR X=1 TO 37 STEP 36 PRINTTAB(X,20); VDU224,10,8,225,10,8,226,10,8,NEXT

515 COLOUR3

520 PRINT'"SPC(4)"Press <Space bar> to continue"

540 REPEAT UNTIL GET=32

550 CLS PRINTTAB(12,1)"Monster Hunt"

560 COLOUR1 PRINT'"The monsters will only remain on the screen when you have found a pair of monsters which are of the same type and colour."

570 COLOUR2

580 PRINT"Try to hunt down and destroy all the monsters with the minimum number of false moves."

600 COLOUR3

610 PRINT'"You must tell the c

mputer where you want to fire the Phaser by typing in the co-ordinates of the square. e.g. E4"

611 COLOUR1

615 FOR X= 1 TO 38 STEP 4

620 PRINT'"TAB(X,25)) VDU231,23

2,10,8,8,237,238

630 NEXTX

635 REM FLUSH KEYBOARD BUFFER

636 \*FX15,0

640 COLOUR3

650 PRINT'"SPC(4)"Press <SPACE BAR> to load Program"

660 REPEAT UNTIL GET=32

670 MODE2

680 FOR X= 1 TO 18 STEP 3

685 COLOUR1

690 PRINTTAB(X,3)) VDU229,230,

10,8,8,235,236

695 COLOUR2

700 PRINTTAB(X,10)) VDU231,232

,10,8,8,237,238

750 NEXTX

760 COLOUR3

770 PRINTTAB(4,6)"Monster Hunt"

"

780 COLOURS

790 PRINTTAB(3,8)"<C> S.W. Lucas"

800 COLOUR7

805 PRINTTAB(8,15)"Please wait for <C> Program to load"

810 REM \*\* define text window \*\*

920 VDU28,0,31,19,20

930 COLOUR6

940 REM \*\* DO NOT TYPE IN THE

NEXT TWO LINES UNTIL YOU HAVE FULLY DEBUGGED THE PROGRAM .. THEN

SAVE A COPY BEFORE RUNNING AS THESE LINES DISABLE ESCAPE AND BR

# Monster Hunt

**A** GRID is displayed on the screen and in each square of it a monster is hidden. You can display two of the monsters at a time by entering their co-ordinates. If the two you choose are identical you score a point; otherwise they will vanish. The object is to find all the pairs in as few attempts as possible.

The program is listed in two parts which should be saved on tape consecutively. The first can then be RUN with CHAIN"" and the second can then be LOADED from the first.

**Monster Hunt** was written for the BBC B(1.2) by Steven Lucas of Cheadle Hulme, Cheshire.

```

REM KEYS! **
850 *FX229,1
860 *KEY 10 OLDIM RUNIM
870 REM ** Next line changes the setting of Page for DISC or E
CUNET users **
880 PAGE=8E00
890 *TAPE
900 CHAIN"Prog2"
910 REM ** Make sure that you save the second Part with the file name in the above line ! **

```

```

10 REM ** Monster Hunt Part 2
**
20 REM ** this Part must be loaded and run from PART1 **
30 REM ** <C> S.W. Lucas January 1984 **
40 REM ** when you have typed this program in, you should save it with the file name of "Prog2"
50 REM ** DO NOT TYPE IN NEXT LINE UNTIL YOU HAVE FULLY DEBUGGED THE PROGRAM
60 ON ERROR RUN
70 *FX229,1
80 *KEY 10 OLDIM RUNIM
90 E%=0:S%=0
100 MODE1
110 VDU19,0,7,0,0,0
120 VDU19,1,1,0,0,0
130 VDU19,2,4,0,0,0
140 VDU19,3,5,0,0,0
150 DIMXX(6,6)
160 VDU20,0,5,39,0
170 GCOL0,1:FOR A%=0 TO 6
180 MOVE0,A%*128:DRAW1280,A%*1
28
190 NEXTR%

```

```

200 MOVE 0,820:DRAW1280,820
210 FOR A%=0 TO 6
220 MOVEA%*190+60,0:DRAWA%*190
+60,820
230 NEXT
240 COLOUR2:PRINTTAB(12)"Monster Hunt":TAB(9)"<C> S.W. Lucas
1984"
250 SOUND1,4,7,50
260 GCOL0,2:VDU5:FORA%=0TO5:MOVE140+A%*190,810:PRINTCHR$(68+A%
):NEXT:VDU4
270 VDU5:FORA%=5TO9STEP-1:MOVE
10,80+A%*128:PRINTCHR$(49+A%):MOVE1280,80+A%*128:PRINTCHR$(49+A%
):NEXT:VDU4
280 A$=CHR$229+CHR$230+CHR$10+
CHR$8+CHR$8+CHR$235+CHR$236
290 B$=CHR$231+CHR$232+CHR$10+
CHR$8+CHR$8+CHR$237+CHR$238
300 C$=CHR$233+CHR$234+CHR$10+
CHR$8+CHR$8+CHR$239+CHR$240
310 D$=CHR$241+CHR$242+CHR$10+
CHR$8+CHR$8+CHR$243+CHR$244
320 E$=CHR$224+CHR$10+CHR$8+CH
R$225+CHR$10+CHR$8+CHR$226
330 F$=CHR$227+CHR$228
340 G$=CHR$245+CHR$245+CHR$245
+CHR$10+CHR$8+CHR$8+CHR$8+CHR$24
5+CHR$245+CHR$245+CHR$10+CHR$8+CH
R$8+CHR$8+CHR$245+CHR$245+CHR$2
45
350 FORA%=1TO18
360 FORB%=1TO2
370 REPEAT
380 C%=RND(6):D%=RND(6)
390 UNTIL X%(C%,D%)=A%
400 X%(C%,D%)=A%
410 NEXT B%,A%
420 REPEAT
430 CLS:COLOUR1:PRINT"Number o
f guesses =";E%:SPC(5);"Score ="

```

```

:5%
440 COLOUR2:PRINT'"Enter the first coordinate :"
450 REPEAT A%=GET:UNTIL(A%>64A
NDX<71)
460 PRINTCHR$(A%)
470 REPEAT B%=GET:UNTIL(B%>48A
NDX<55)
480 PRINTCHR$(B%)
490 A%=A%-64:B%=B%-48:T%=A%:U%
=B%
500 PROCPrint
510 IF X%(A%,B%)=0 THENPRINT"Y
ou have already guessed that location":"
"Press <SPACE BAR> to continue"::E%=E%+1:REPEAT UNTIL GET
=32:GOTO430
520 PRINT'"Enter the second coordinate :"
530 REPEAT C%=GET:UNTIL(C%>64A
NDX<71)
540 PRINTCHR$(C%)
550 REPEAT D%=GET:UNTIL(D%>48A
NDX<55)
560 PRINTCHR$(D%)
570 C%=C%-64:D%=D%-48:T%=C%:U%
=D%
580 IF (A%=C% AND B%=D%) THENP
RINT"Don't cheat!":"
"Press <SPACE BAR> to continue"::E%=E%+1:REPE
AT UNTIL GET=32:PROCcls :GOTO430
590 PROCPrint
600 IF X%(C%,D%)=0 THENPRINT"Y
ou have already guessed that location":"
"Press <SPACE BAR> to continue"::E%=E%+1:REPEAT UNTIL GET
=32:VDU5:MOVEA%*190-60,B%*128-20
-GCOL0,0:PRINTG$:VDU4:GOTO430
610 *FX21,0
620 E%=E%+1
630 PRINTSPC(5):"Press <SPACE B
AR> to continue":REPEAT UNTIL GE
T=32
640 CLS:IF X%(A%,B%)<X%(C%,D%
)THENPROCcls :SOUND1,2,4,50 ELSE
S%=S%+1:X%(A%,B%)=0:X%(C%,D%)=0:S
OUND1,4,30,36
650 UNTILS%=18
660 CLS:PRINT"Well done you ha
ve found all of the monsters
with only ";E%-S%
670 PRINT"wrong moves. ":"Would
you like another game <Y/N>"
680 REPEAT S$=GET$:
690 UNTIL S$="Y":URS$="N"
700 IF S$="Y"THEN RUN ELSE MODE6:
PRINT"THANK YOU FOR PLAYING!":EN
D
710 END
720 DEFPROCPrint
730 SOUND0,3,7,20
740 VDU5:MOVE T%*190-60,U%*128
-20
750 V%=%(T%,U%)
760 IF V%<19 THEN GCOL0,1
770 IF V%<13 THEN GCOL0,2
780 IF V%<7 THEN GCOL0,3
790 IF V%>10RV%>7URV%>13THENPR
INTD$:
800 IF V%>20RV%>8URV%>14THENPR
INTB$:
810 IF V%>30RV%>30URV%>15THENPR
INTC$:
820 IF V%>40RV%>10URV%>16THENP
RINTD$:
830 IF V%>50RV%>11URV%>17THENP
RINTE$:
840 IF V%>60RV%>12URV%>18THENP
RINTF$:
850 VDU4:ENDPROC
860 DEFPROCcls
870 VDU5:MOVE A%*190-60,B%*128
-20
880 GCOL0,0:PRINTG$:
890 MOVE C%*190-60,D%*128-20
900 PRINTG$:
910 VDU4
920 ENDPROC

```

# 3D MAZE

**T**HIS PROGRAM produces a three-dimensional maze in MODE 2 graphics. Side walls are shown in green, facing walls in red. Any maze can be set up by changing the

data in lines 20-140. In those lines 1 represents a wall, 0 represents a passage, and 8 the target. The depth and width of any new maze can be placed in the variable A% in line 170. Move

through the maze using the cursor keys.

**Three-dimensional Maze** was written for the BBC and Electron by C J Locke of Winscombe, Avon.



```

10 ON ERROR GOTO 1350
20 DATA 1,1,1,1,1,1,1,1,1,1
,1 30 DATA 1,0,0,0,0,1,0,0,0,1
,1 40 DATA 1,0,1,0,1,1,0,1,1,0,0
,1 50 DATA 1,0,1,0,0,0,0,0,0,1,0
,1 60 DATA 1,0,1,0,1,1,1,1,0,1,0
,1 70 DATA 1,0,0,0,1,8,1,0,0,0,0
,1 80 DATA 1,0,1,1,1,0,1,0,1,1,0
,1

```

```

90 DATA 1,0,0,1,0,0,0,1,1,0,0
,1 100 DATA 1,0,1,1,0,1,0,1,0,1,0
,1 110 DATA 1,0,1,0,0,1,0,1,0,0,0
,1 120 DATA 1,0,1,1,1,0,0,0,0,1,0
,1 130 DATA 1,0,0,0,1,0,1,1,0,1,0
,1 140 DATA 1,1,1,1,1,1,1,1,1,1,1
,1
150 REM
160 *FX4,1
170 DIM A%(13,12)
180 FOR T=1 TO 13:FOR H=1 TO 1
2
190 READ A%(T,H)
200 NEXT H,T
210 X%=2:Y%=2:DIR=2
220 TIME=0
230 H%=4*(TANK(60)*600)-H1%=0
240 MODE2
250 VDU 29:8202,0,0,0
260 REM >>> MAIN LOOP <<<
270 W%=600:W1%=200
280 FOR T=0 TO 4
290 H2%=H1%+TANK(60)*(W1%*2)
300 ON DIR GOSUB 490,570,650,7
30
310 W%=W%-W1%:W1%=W1%-40
320 H1%=H2%
330 NEXT T
340 PRINTTAB(0,0):"TIME ";120-
(TIME DIV 100);"
350 IF 120-(TIME DIV 100)<=0 T
HEN GOTO 1530
360 Z=INKEY(10):IF Z<136 THEN
GOTO 340
370 IF Z=136 THEN DIR=DIR-1
380 IF Z=137 THEN DIR=DIR+1
390 IF DIR<1 THEN DIR=4

```

```

400 IF DIR>4 THEN DIR=1
410 IF Z=139 THEN GOTO 400
420 GOTO 230
430 IF DIR=1 AND A%(Y%,X%)>>
1 THEN Y%=Y%-1
440 IF DIR=2 AND A%(Y%,X%+1)>>
1 THEN X%=X%+1
450 IF DIR=3 AND A%(Y%+1,X%)>>
1 THEN Y%=Y%+1
460 IF DIR=4 AND A%(Y%,X%-1)>>
1 THEN X%=X%-1
470 IF A%(Y%,X%)=8 THEN GOTO 1
390
480 GOTO 230
490 Y1%=Y%-T
500 IF A%(Y1%,X%)=8 THEN GOTO
1210
510 IF A%(Y1%,X%)=1 THEN GOTO
1130
520 IF A%(Y1%,X%-1)=1 THEN PRU
Clefcl
530 IF A%(Y1%,X%+1)=1 THEN PRU
Criecl
540 IF A%(Y1%,X%-1)=0 THEN PRU
Clefop
550 IF A%(Y1%,X%+1)=0 THEN PRU
Crieop
560 RETURN
570 X1%=X%+T
580 IF A%(Y%,X1%)=8 THEN GOTO
1210
590 IF A%(Y%,X1%)=1 THEN GOTO
1130
600 IF A%(Y%-1,X1%)=1 THEN PRU
Clefcl
610 IF A%(Y%-1,X1%)=0 THEN PRU
Criecl
620 IF A%(Y%-1,X1%)=0 THEN PRU
Clefop
630 IF A%(Y%+1,X1%)=0 THEN PRU
Crieop
640 RETURN

```

```

650 Y1% = Y% + T
660 IF A% (Y1%, X%) = 0 THEN GOTO
1210
670 IF A% (Y1%, X%) = 1 THEN GOTO
1130
680 IF A% (Y1%, X% + 1) = 1 THEN PRO
Clefcl
690 IF A% (Y1%, X% - 1) = 1 THEN PRO
Criecl
700 IF A% (Y1%, X% + 1) = 0 THEN PRO
Clefop
710 IF A% (Y1%, X% - 1) = 0 THEN PRO
Crieop
720 RETURN
730 X1% = X% - T
740 IF A% (Y%, X1%) = 0 THEN GOTO
1210
750 IF A% (Y%, X1%) = 1 THEN GOTO
1130
760 IF A% (Y% + 1, X1%) = 1 THEN PRO
Clefcl
770 IF A% (Y% - 1, X1%) = 1 THEN PRO
Criecl
780 IF A% (Y% + 1, X1%) = 0 THEN PRO
Clefop
790 IF A% (Y% - 1, X1%) = 0 THEN PRO
Crieop
800 RETURN
810 DEF PROClefcl
820 GCOL 0, 2
830 MOVE 600 - W%, H1%
840 DRAW (600 - W%) + W1%, H2%
850 DRAW (600 - W%) + W1%, H% - H2%
860 DRAW 600 - W%, H% - H1%
870 DRAW 600 - W%, H1%
880 ENDPROC
890 DEF PROUriecl
900 GCOL 0, 2
910 MOVE 1200 - (600 - W%), H1%
920 DRAW 1200 - ((600 - W%) + W1%), H%
930 DRAW 1200 - ((600 - W%) + W1%), H% - H2%
940 DRAW 1200 - (600 - W%), H% - H1%
950 DRAW 1200 - (600 - W%), H1%
960 ENDPROC
970 DEF PROClefop
980 GCOL 0, 1
990 MOVE (600 - W%) + W1%, H2%
1000 DRAW 600 - W%, H2%

```

```

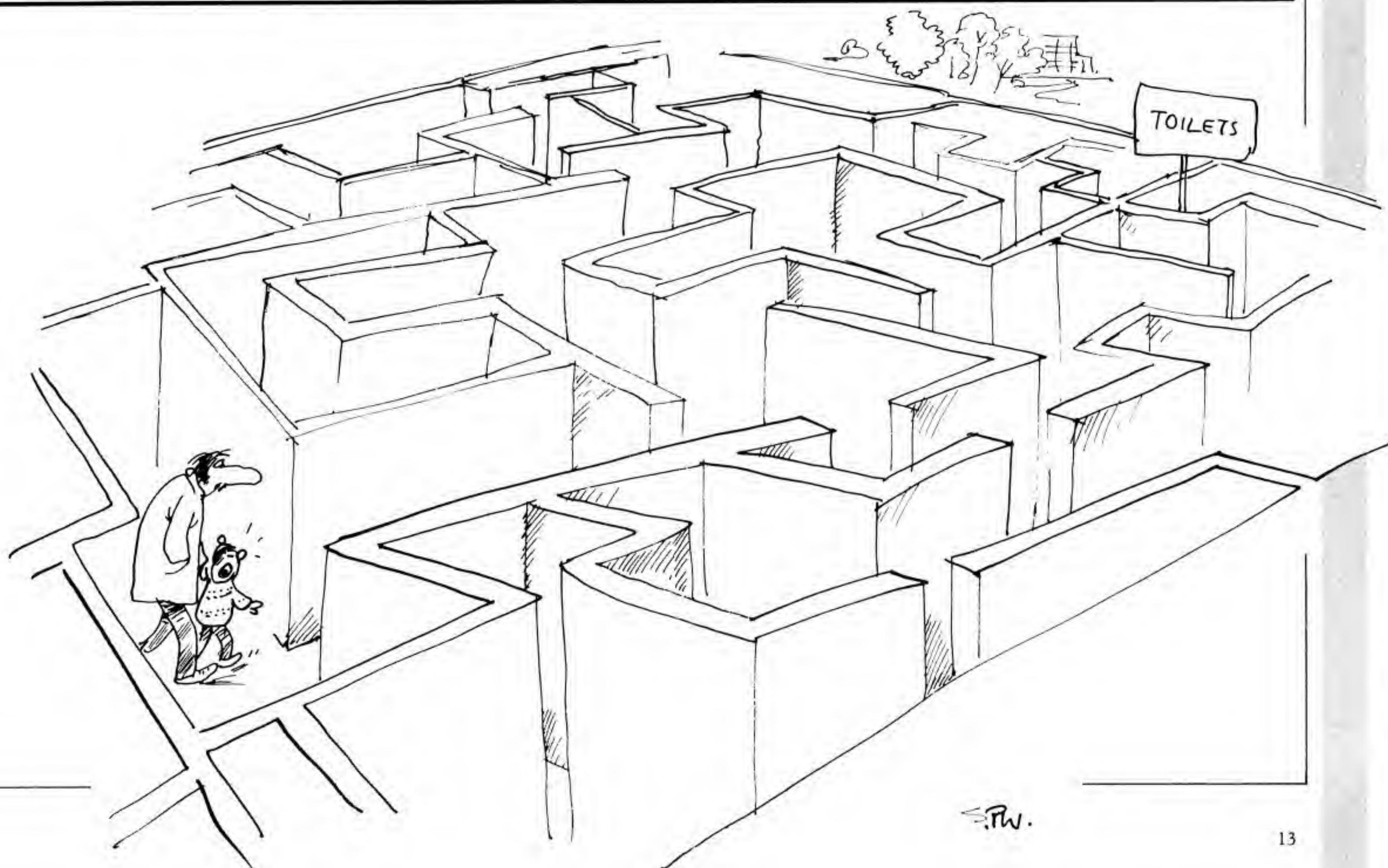
1010 DRAW 600 - W%, H% - H2%
1020 DRAW (600 - W%) + W1%, H% - H2%
1030 DRAW (600 - W%) + W1%, H2%
1040 ENDPROC
1050 DEF PROUrieop
1060 GCOL 0, 1
1070 MOVE 1200 - ((600 - W%) + W1%), H%
1080 DRAW 1200 - (600 - W%), H2%
1090 DRAW 1200 - (600 - W%), H% - H2%
1100 DRAW 1200 - ((600 - W%) + W1%), H% - H2%
1110 DRAW 1200 - ((600 - W%) + W1%), H%
1120 ENDPROC
1130 REM >>> END <<<
1140 GCOL 0, 1
1150 MOVE 600 - W%, H1%
1160 DRAW 1200 - (600 - W%), H1%
1170 DRAW 1200 - (600 - W%), H% - H1%
1180 DRAW 600 - W%, H% - H1%
1190 DRAW 600 - W%, H1%
1200 T = 4: RETURN
1210 REM exit
1220 TIM% = TIME
1230 COL = 2
1240 FOR EX% = H1% TO 396 STEP 16
1250 GCOL 0, COL
1260 COL = COL + 1: IF COL = 7 THEN CO
L = 2
1270 MOVE (600 - W%) + (EX% - H1%), EX%
1280 DRAW (600 - W%) + (EX% - H1%), H%
- EX%
1290 DRAW 1200 - ((600 - W%) + (EX% - H
1%), H% - EX%
1300 DRAW 1200 - ((600 - W%) + (EX% - H
1%), EX%
1310 DRAW (600 - W%) + (EX% - H1%), EX%
1320 Z = INKEY(0): IF Z > 100 THEN G
OTO 1340
1330 NEXT EX%
1340 TIME = TIM%: T = 4: GOTO 330
1350 MODE 7
1360 *FX4, 0
1370 PRINT "ERROR: "; ERR; " AT LI
NE "; ERL
1380 END
1390 REM >> REACHED IT <<<

```

```

1400 ENVELOPE 1, 1, 2, 0, -2, 20, 4, 2
0, 0, 0, -1, 80, 80
1410 SOUND 1, 1, 100, 60: SOUND 2, 1
, 100, 60
1420 FOR COL1 = 0 TO 20
1430 FOR COL = 1 TO 5
1440 VDU 19, COL - 1, COL - 1; 0, 19, 0
0, 0, 0
1450 VDU 19, COL + 1, 0; 0
1460 Z = INKEY(6)
1470 NEXT COL
1480 VDU 19, 5, 5, 0, 19, 6, 6; 0
1490 NEXT COL1
1500 TIME = 0: REPEAT UNTIL TIME = 3
0
1510 CLG
1520 GOTO 1520
1530 REM >>> OUT OF TIME <<<
1540 REM >>> DURGE <<<
1550 ENVELOPE 1, 1, 0, 0, 0, 0, 0, 0, 2
0, -1, 0, -1, 80, 40
1560 READ X: IF X = 999 THEN GOTO
1630
1570 READ Y
1580 SOUND 1, 1, X, Y: SOUND 2, 1, X,
Y
1590 GOTO 1560
1600 DATA 53, 15, 53, 15, 53, 5, 53, 1
5
1610 DATA 65, 15, 61, 5, 61, 15, 53, 5
, 53, 8
1620 DATA 45, 15, 53, 20, 999
1630 MODE 1
1640 MOVE 100, 100: DRAW 100, 700
1650 DRAW 300, 800: DRAW 800, 800
1660 DRAW 1000, 700: DRAW 1000, 10
0
1670 DRAW 100, 100
1680 *FX9, 20
1690 *FX10, 20
1700 VDU 19, 3, 19; 0
1710 PRINT TAB(14, 10); "R.I.P"
1720 PRINT TAB(7, 12); "'DIED OF
SUFFOCATION'"
1730 COLOUR 2
1740 PRINT TAB(8, 18); "ANOTHER A
TTEMPT ?"
1750 R$ = GET$
1760 IF R$ = "N" THEN END
1770 RUN

```



# MATHS

THE COMPUTER throws a random number of dice. Add the numbers shown on their tops, which are displayed in the left-hand column, and their bases, which are shown in the right-hand column. The computer will then indicate the answer. An ideal program for learning and practising addition.

**Maths** was written for the BBC B and Electron by James Morle of Formby, Liverpool.

```

10 MODE 1
20 PROC diceroll
30 DEF PROC Questions
32 MODE 7
35 PROC exPlain
40 GOTO 10
50 DEF PROC diceroll
60 COLOUR 129: COLOUR 2
70 B=RND(5)
80 IF B=1 THEN 70
90 PRINTTAB(8,0), "Bottom", TAB(26,0), "Top"
100 Y=2
110 COLOUR 135: COLOUR 0
120 ANS=B*7
130 FOR ROLL=1 TO B
140 NO=RND(6)
150 PRINTTAB(9,Y)
160 PROC dice(NO)
170 PRINTTAB(26,Y), PROC dice(7-NO)
180 Y=Y+4
190 NEXT
200 ENDPROC
210 DEF PROC dice(NUM)
220 NUM NUM GOTO 230,250,270,290
,310,330
230 PRINT "",CHR$8,CHR$8,CHR$8
,CHR$10,
240 PRINT "o ",CHR$8,CHR$8,CHR$8
,CHR$10," ",GOTO 350
250 PRINT "o ",CHR$8,CHR$8,CHR$8
,CHR$10,
260 PRINT " ",CHR$8,CHR$8,CHR$8
,CHR$10," o ",GOTO 350
270 PRINT "o ",CHR$8,CHR$8,CHR$8
,CHR$10,
280 PRINT "o ",CHR$8,CHR$8,CHR$8
,CHR$10," o ",GOTO 350
290 PRINT "o o ",CHR$8,CHR$8,CHR$8
,CHR$10,
300 PRINT " ",CHR$8,CHR$8,CHR$8
,CHR$10,"o o ",GOTO 350
310 PRINT "o o ",CHR$8,CHR$8,CHR$8
,CHR$10;

```

```

320 PRINT "o ",CHR$8,CHR$8,CHR$8
,CHR$10,"o o ",GOTO 350
330 PRINT "o o ",CHR$8,CHR$8,CHR$8
,CHR$10,
340 PRINT "o o ",CHR$8,CHR$8,CHR$8
,CHR$10,"o o ",GOTO 350
350 ENDPROC
360 DEF PROC Questions
370 COLOUR 1: COLOUR 130
380 PRINTTAB(8,24), "Add up numbers in TOP column."
390 A=INKEY(2000)
400 COLOUR 129: COLOUR 2
410 PRINTTAB(8,25), "Add up numbers in the BOTTOM column."
420 A=INKEY(2000)
430 COLOUR 1: COLOUR 130
440 PRINTTAB(8,26), "Add up your results."
450 A=INKEY(1000)
460 COLOUR 129: COLOUR 2
470 PRINTTAB(8,27), "Your answer is ",ANS,"!!!"
480 COLOUR 1: COLOUR 130
490 PRINTTAB(8,28), "Correct (Y/N)",IF GET$="N" THEN PRINTTAB(8,29),"Liar!!!"
500 COLOUR 129: COLOUR 2
510 PRINT "Press a key to continue..."
520 R$=GET$
530 ENDPROC
540 DEF PROC exPlain
550 FOR B=0 TO 1
560 PRINTTAB(8,B),CHR$141,CHR$1
31,"Explanation."
570 NEXT
580 PRINT "CHR$132,"The Prediction is achieved by the fact ",CHR$132,"that the top and bottom no.s of a dice ",CHR$132,"always add up to 7 !!!"
590 PRINT "CHR$133,"Press a key to continue...")
600 R$=GET$
610 ENDPROC

```

WHO'S GOING TO BE A  
LITTLE NOBEL  
PRIZEWINNER, THEN...



# TYPEASY

- Typing tutor for BBC model B or Electron
- 139 graded exercises on cassette or disc
- PLUS routines for writing more yourself
- KEYBOARD DISPLAY with pointer
- NEW KEYS practised in one line exercises tells you which finger to use
- CAPS/lower case, numerals, punctuation, signs!
- ADVANCED multiline paragraphs – checks all strokes, new lines, etc at end of copy
- MEASURES SPEED in words/minute
- LOG of pupil's work displayed or printed

## TYPE INVADERS

A game to take you to *FRENETIC SPEEDS*

LETTERS rain down faster and faster – KILL them by pressing the right key before they occupy your base. Choose from many levels:

CAPS only, u/l case, numerals, whole words	
Finds and attacks your weak spots	
Typeasy – cassette	£8.95
disc 40 track	£12.50
Type Invaders – cassette (BBC only)	£6.95
disc 40 track	£10.50
Two on one disc 40 track	£16.50

*all inclusive — cheque with order*

Carswell Computers Faringdon, Oxon, SN7 8JN

## FOR THE BBC MICRO SOFTWARE

### TINY PASCAL

Pascal-T is a 16k Eprom program capable of compiling Source Pascal into a compact and very fast threaded-interpretive-code. Full editor and disc-support are included and the program is supplied together with comprehensive documentation. **PRICE £59.00 + V.A.T.**

### X CAL

An Expert Computer Aided Learning package in 16k Eprom and support disc. No programming skill required to construct learning 'sessions' as the program is 'screen' driven. Facilities include Text pages, Graphics and Histograms. **PRICE £65.00 + V.A.T.**

### FORTH

FIG-FORTH in 8k Eprom together with manual. **PRICE £34.72 + V.A.T.**

### LOGO-FORTH

A 16k Eprom program introducing this very powerful but extremely friendly Turtle-Graphics language. Users also have full access to the Fig-Forth support nucleus. Full documentation is included. **PRICE £59.00 + V.A.T.**

### M-UTS

Powerful machine code monitor with disc utilities.

**PRICE £19.95 + V.A.T.**

(Special discounts available for educational establishments for all the above software)

## HARDWARE

Always in stock Printers, Disc Drives IC's etc.

## FOR THE EPSON HX20

### SOFTWARE

FORTH ROM including full documentation. **£34.72**

### HARDWARE

Expansion Unit, Paper, Microcassettes etc. Please phone for quotes

Retail/Mail Orders/Dealers

enquiries to:

### HCCS Associates

533 Durham Road, Low Fell,  
Gateshead, Tyne & Wear  
NE9 5EY

Tel: (0632) 821924

Retail sales also at:  
HCCS Microcomputers  
122 Darwen Street  
Blackburn, Lancs.  
Tel: (0254) 672214

# DISCOUNT SOFTWARE

FROM  
**SOFT SHOP**

### A FEW EXAMPLES FROM OUR RANGE

Andriod Attack (Computer Concepts)	£8.95
Centipede (Superior Software)	£7.95
Moonbase Alpha (Micropower)	£7.95
3D Bomb Alley (Software Invasion)	£7.95
LISP (Acornsoft)	£16.85
Snake Pit (Postern)	£7.95
Strato Bomber (IJK)	£7.50
Great Britain Ltd (Hessel)	£5.95
Bug Byte (Sea Lord)	£7.50
Digital Fantasia (Golden Baton)	£9.95

★ **- SPECIAL OFFER -** ★  
★ **£1.25 OFF** ★  
★ all cassettes (while stocks last) ★  
★ Postage & Packing Free. ★

Send for our free catalogue which includes all the leading software houses.

Send catalogue requests and orders to:  
**SOFT SHOP, 78 Warren Drive, Hornchurch, Essex RM12 4QX.**  
Telephone: (04024 - 47722)

## Micro desks designed for your home



**NOW - the DX80 Junior for just £19.95 (Plus £6.50 carriage)**

The DX80 Junior Home Computer Desk is more than just a practical display unit for your micro system, it's a stylish piece of furniture that comes in a range of colours and finishes to ensure that it fits your lifestyle.

Available in Cream, Signal Red, Black, Oak-style, and Arctic White, the DX80 Junior is delivered to your door in kit form with easy to assemble instructions.

Approx sizes: Depth 19", width 27 1/2", height 36". Price does not include computer equipment and accessories. Dealer enquiries invited.

Tel: 0992 54514.

Post to: DX Marketing (EA), Unit PP, Mimram Road, Hertford, Hertfordshire SG14 1NN.

Please send me.....DX80 Junior Home Computer Desk at £19.95 each  
(add £6.50 for delivery. VAT included)

Please tick colour required

I enclose my cheque/postal order £.....

Signature.....

Name.....

Address.....

Post Code.....



Cream



Signal Red



Black



Oak-style



Arctic White



# BOMBER

**Y**OU ARE the black ship and must bomb the green submarines which pass beneath you. Move left with Z, right with X, drop left bombs with : and right bombs with ?. You have three ships, each of which

can be destroyed by the bombs of the submarine. When all your ships have been destroyed, press the space bar for another turn.

**Bomber** was written for the BBC B by Alex Segre of London.



```

10 MODE 2
20 PROCinitialise
30 COLOUR 132:CLS
40 COLOUR 3:PRINT TAB(0,0);"S
core="";score:TAB(13,0);"Lives=";
lives
50 REPEAT
60 COLOUR 3:PRINT TAB(13,0);"
Lives=";lives
70 R#=INKEY$(0)
80 IF R#="Z" AND X>0 THEN X=X
-1
90 IF R#="X" AND X<13 THEN X=
X+1
100 IF R#=".:" AND F=0 THEN F=1
:G=Y:V=X+1
110 IF R#="J" AND G=0 THEN G=1
:N=Y:M=X+4
120 *FX 15,1
130 COLOUR 0:PRINT TAB(X,Y);"
":SHIP":"
140 IF F=1 THEN PROCfireF
150 IF G=1 THEN PROCfireG
160 R=RND(10):IF R=1 AND Z=0 T
HEN Z=1:REPEAT:W=RND(20):UNTIL W
>12:Q=0
170 IF Z=1 THEN COLOUR 2:PRINT
TAB(Q,W);":SUB"
180 IF Z=1 AND RND(10)=5 THEN
PRINT TAB(E,L+1);":U=1:E=Q+3:L
=W
190 SL=SL+1:IF SL MOD 3=1 OR S
L MOD 3=2 THEN Q=Q+1
200 IF Q>15 THEN Z=0:PRINT TAB
(Q,W);"
210 IF U=1 THEN PROCfightback
220 UNTIL FALSE
230 DEF PROCfireF
240 PRINT TAB(V,S-1);"
250 PRINT TAB(V,S):BOMB#
260 IF S<28 AND F=1 THEN S=S+1
ELSE F=0:PRINT TAB(V,28);"
270 IF V>Q AND V<Q+4 AND S=W T
HEN PRINT TAB(V,S-1);":PROCexp

```

```

lode:F=0
280 ENDPROC
290 DEF PROCfireG
300 PRINT TAB(M,N-1);"
310 PRINT TAB(M,N):BOMB#
320 IF N<28 AND G=1 THEN N=N+1
ELSE G=0:PRINT TAB(M,28);"
330 IF M>Q AND M<Q+4 AND N=W T
HEN PRINT TAB(V,S-1);":PROCexp
lode:F=0
280 ENDPROC
290 DEF PROCfireG
300 PRINT TAB(M,N-1);"
310 PRINT TAB(M,N):BOMB#
320 IF N<28 AND G=1 THEN N=N+1
ELSE G=0:PRINT TAB(M,28);"
330 IF M>Q AND M<Q+4 AND N=W T
HEN PRINT TAB(M,N-1);":PROCexp
lode:G=0
340 ENDPROC
350 DEF PROCExplode
360 SOUND&0010,2,4,50
370 Z=0
380 COLOUR 1
390 PRINT TAB(Q,W):EX#:EX#:EX#
:EX#:FOR A=0 TO 200:NEXT A:PRINT
TAB(Q,W);"
400 Q=0:W=0
410 score=score+10
420 COLOUR 3:PRINT TAB(0,0);"S
core":score
430 ENDPROC
440 DEF PROCfightback
450 COLOUR 5
460 PRINT TAB(E,L+1);"
470 PRINT TAB(E,L):BOMB#
480 L=L-1
490 IF L=9 THEN U=0:IF E>X AND
E<X+5 THEN PROCdead
500 IF L=9 THEN PRINT TAB(E,L+
1);"
510 ENDPROC
520 DEF PROCdead
530 lives=lives-1

```

```

540 COLOUR 3:PRINT TAB(13,0);"
Lives=";lives
550 SOUND &0014,-15,100,30
560 COLOUR 1:PRINT TAB(X,Y):EX#
:EX#:EX#:EX#:FOR A=0 TO 270
0:NEXT:PRINT TAB(X,Y);"
570 X=0
580 IF lives=0 THEN PROCfinish
590 ENDPROC
600 DEF PROCfinish
610 REPEAT:UNTIL GET=32
620 RUN
630 DEF PROCinitialise
640 VDU 23,8202,0,0,0
650 *FX 11,8
660 *FX 12,6
670 X=0:Y=10:F=0:G=F:Z=F:Q=F:W
=F:U=F:E=F:L=F:SL=F:lives=3:scor
e=F
680 ENVELOPE 2,10,0,0,0,10,10,
10,126,-5,-5,110,0
690 VDU 23,240,0,0,0,159,191,2
55,191,159,23,241,0,31,31,255,25
5,255,255,255,23,242,128,128,128
,252,246,254,252,248
700 VDU 23,244,0,0,0,126,14,25
5,63,31,23,245,1,1,1,127,127,255
,255,255,23,246,4,4,4,254,254,25
5,255,255,23,247,2,4,8,112,112,2
55,252,248
710 VDU 23,243,195,231,126,60,
60,60,60,24
720 VDU 23,248,24,60,60,60,60,
126,231,195
730 VDU 23,249,84,10,188,29,18
0,46,69,40
740 SHIP#=CHR$(244)+CHR$(245)+
CHR$(246)+CHR$(247)
750 SUB#=CHR$(240)+CHR$(241)+C
HR$(242)
760 BOMB#=CHR$(243)
770 SBOMB#=CHR$(248)
780 EX#=CHR$(249)
790 ENDPROC

```



# DRIVER

```

10 REM By Alex Segre
20 high=0
30 MODE 2
40 PROCinitialise
50 REPEAT
60 score=score+1
70 PRINT TAB(X,Y);CHR$(240)
80 move$=INKEY$(0)
90 car=RND(19)
100 R=RND(2): IF R=1 THEN COLOUR
R 2:PRINT TAB(car,2);CHR$(241)
110 PRINT TAB(X,Y);"
120 VDU 30,11
130 IF move$="," AND X>1 THEN
X=X-1:SOUND 0,-15,50,1
140 IF move$="." AND X<19 THEN
X=X+1:SOUND 0,-15,50,1
150 COLOUR 4
160 PRINT TAB(X,Y);CHR$(240)
170 UNTIL POINT(X*65+16,282)=2
180 COLOUR 1

```

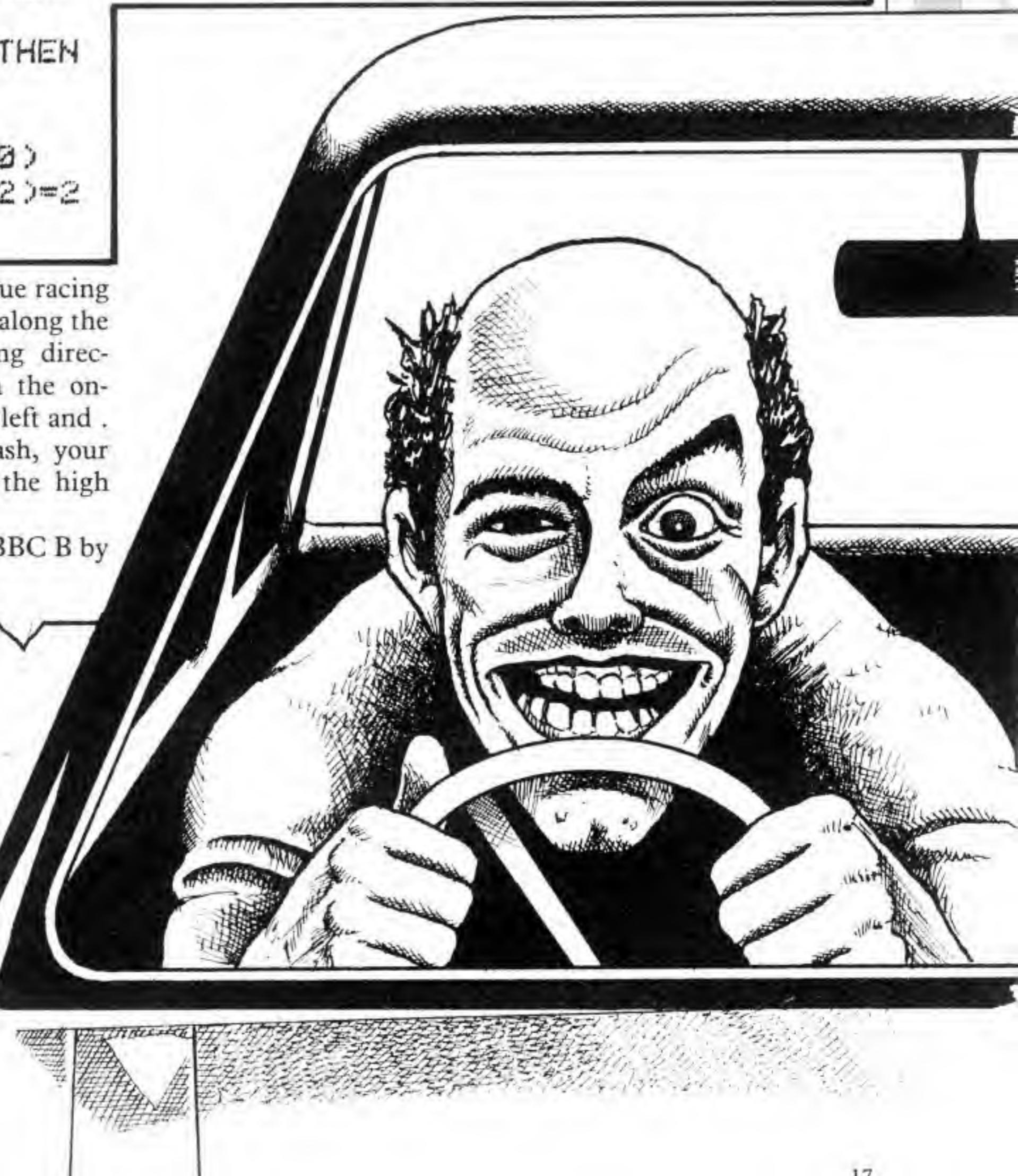
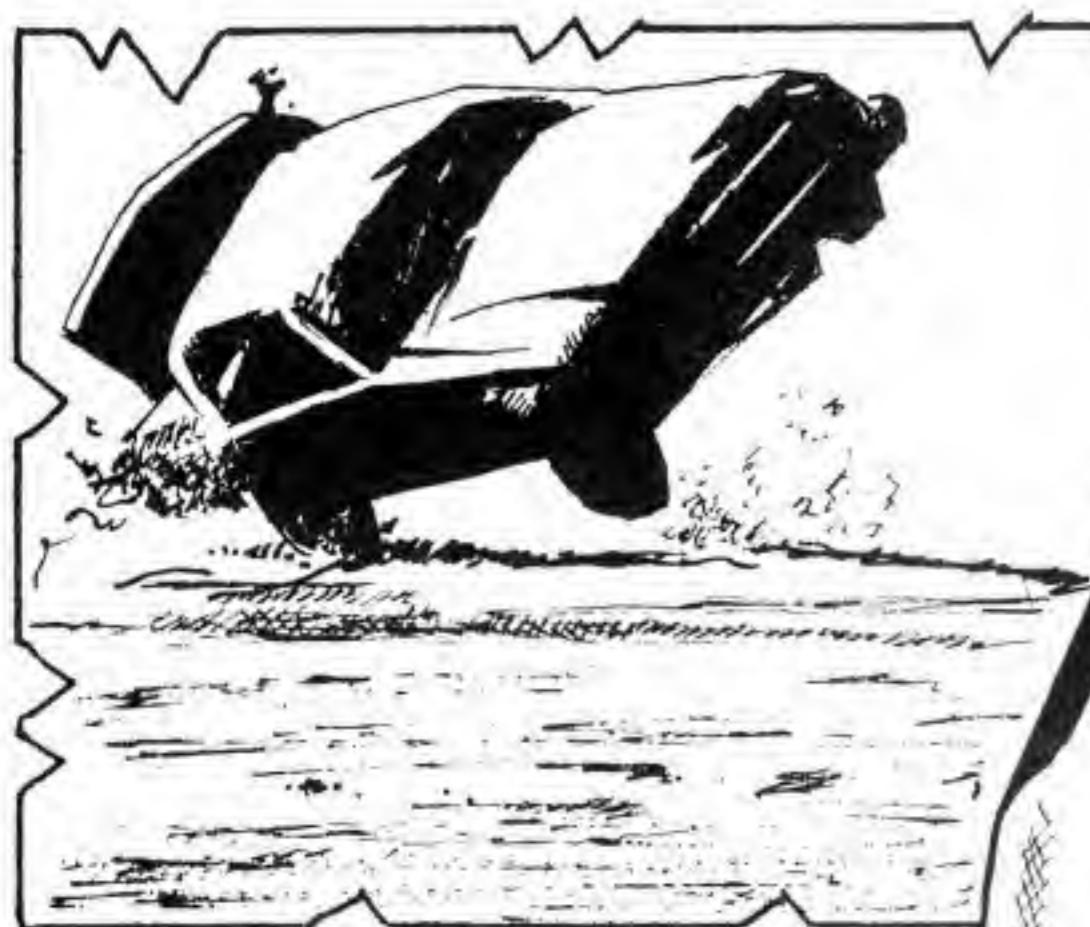
**Y**OU CONTROL the blue racing car, which is travelling along the motorway in the wrong direction. Steer your way through the on-coming traffic using , to move left and . to move right. When you crash, your score will be displayed with the high score below it.

**Driver** was written for the BBC B by Alex Segre of North London.

```

190 PRINT TAB(X,Y);CHR$(242)
200 SOUND 0,2,4,50
210 IF score>high THEN high=score
220 COLOUR 3
230 PRINT TAB(7,13);"SCORE ";score
240 PRINT TAB(7,15);"HIGH ";high
250 FOR T=0 TO 3000:NEXT
260 *FX 12,0
270 *FX 15,0
280 G=GET
290 GOTO 30
300 DEF PROCinitialise
310 VDU 23,8202,0,0,0
320 ENVELOPE 2,10,0,0,0,10,10,
10,126,-5,-5,-5,110,0
330 VDU 23,240,8,93,127,93,28,
93,127,85
340 VDU 23,241,85,127,93,28,93
,127,93,8
350 VDU 23,242,84,10,188,29,11
6,46,69,40
360 *FX 11,8
370 *FX 12,6
380 X=12
390 Y=24
400 score=-21
410 ENDPROC

```



# The invasion has begun... for BBC Model B

Let excitement invade your home computer!  
Travel to Alpha Centauri. Enter the Vortex.  
Command the ground missiles, or join the  
shoot-out at the O.K. Corral.



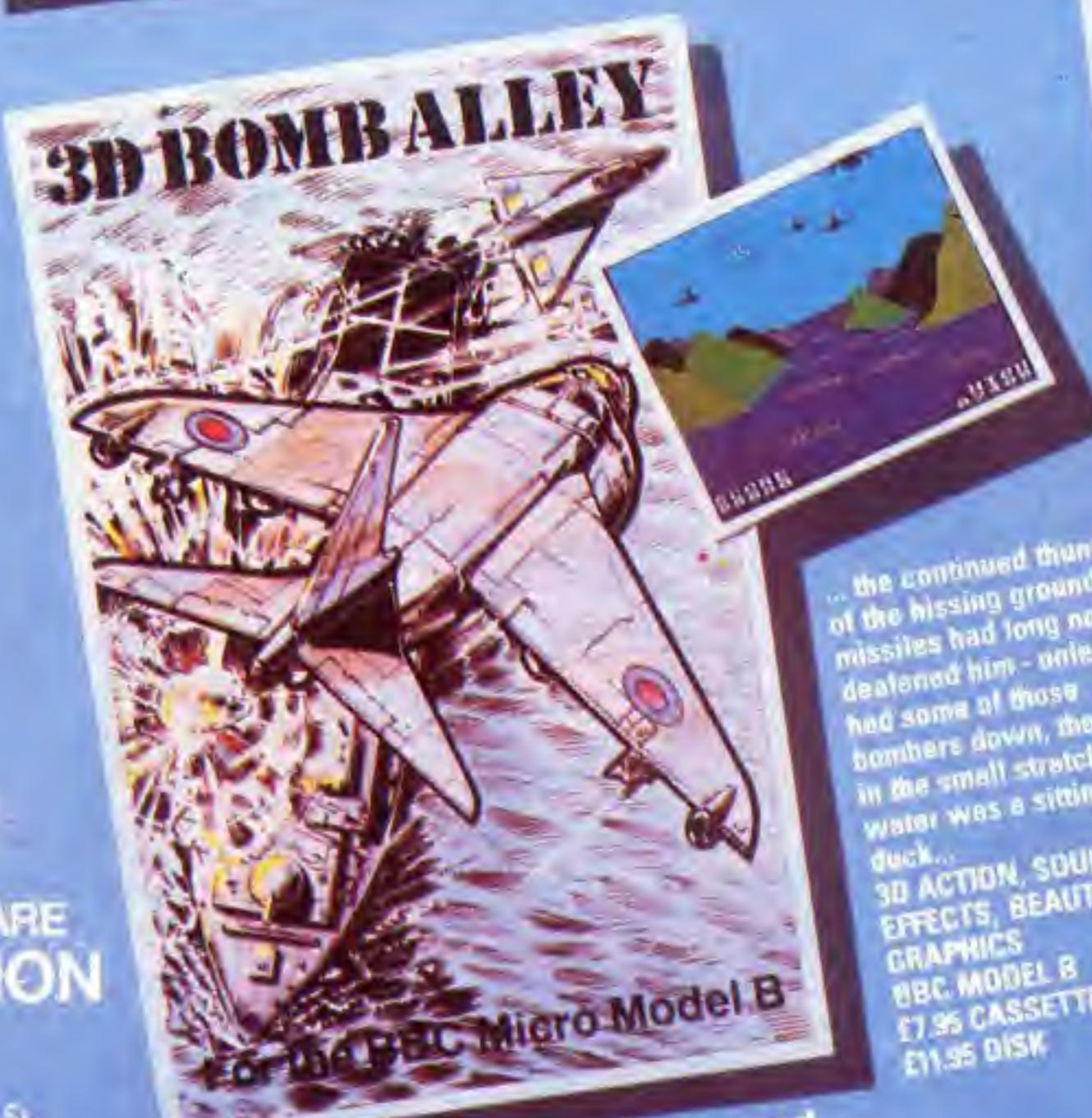
...he punched the key, and  
the control monitor filled  
with the picture of  
bug-eyed wasps attacking  
from their volcanic nest.  
Decisively he dived to the  
left and his laser gun burst  
into action...

3D ACTION, EXPLOSIVE  
SOUND EFFECTS  
BBC MODEL B  
£7.95 CASSETTE  
£11.95 DISK



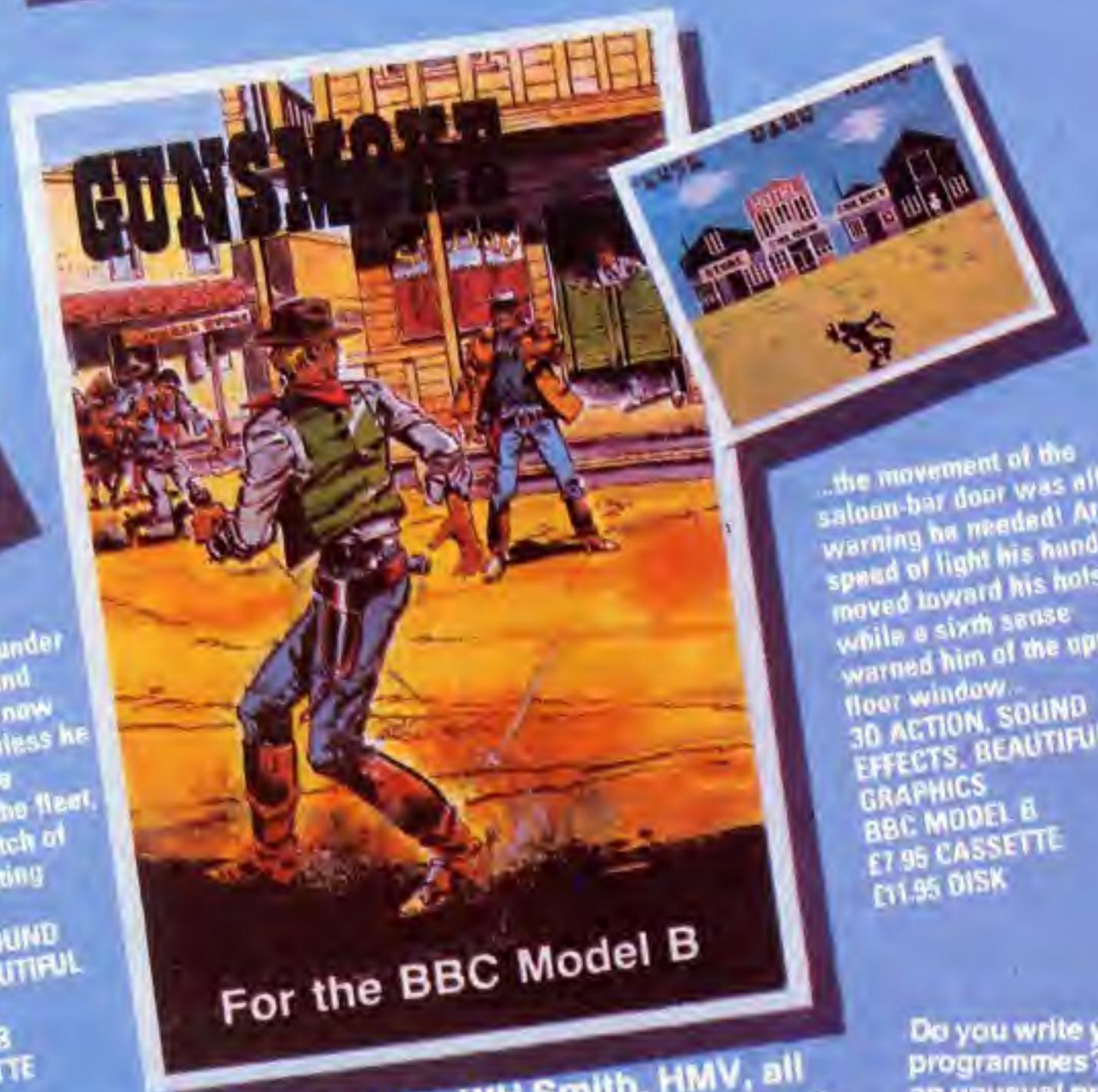
...there was no escape... he  
had to enter the Vortex and  
bet on his skills! He  
grabbed the manual  
controls and with  
determination fired both  
upper deck guns...

KEYBOARD OR JOYSTICK,  
EXCELLENT SOUND  
BBC MODEL B  
£7.95 CASSETTE  
£11.95 DISK



...the continued thunder  
of the hissing ground  
missiles had long now  
deafened him - unless he  
had some of those  
bombers down, the fleet  
in the small stretch of  
water was a sitting  
duck...

3D ACTION, SOUND  
EFFECTS, BEAUTIFUL  
GRAPHICS  
BBC MODEL B  
£7.95 CASSETTE  
£11.95 DISK



...the movement of the  
saloon-bar door was all the  
warning he needed! At the  
speed of light his hand  
moved toward his holster,  
while a sixth sense  
warned him of the upper  
floor window...

3D ACTION, SOUND  
EFFECTS, BEAUTIFUL  
GRAPHICS  
BBC MODEL B  
£7.95 CASSETTE  
£11.95 DISK

● Available from WH Smith, HMV, all  
Spectrum shops and over 500 retail  
outlets in the U.K.

Do you write your own  
programmes? If you have  
an unusual programme  
which can meet our  
standards you could be  
earning more than £250 per  
week. Why not take  
advantage of our sought  
after reputation. Write now!

● Distributors, Multiple Store and  
Retailer Group Inquiries Invited.

## SOFTWARE INVASION

50 Elborough St,  
Southfields,  
London SW18 5DN.  
Tel: (01) 870 1197

### HOW TO ORDER

You may purchase any of the Games  
listed from most good BBC Software  
Stockists, WH Smiths, HMV or your  
nearest Spectrum Dealer.

To order direct, fill in the coupon below  
with your requirements, make  
cheque/P.O. payable to: SOFTWARE  
INVASION and post to us. Please allow 7  
to 14 days for delivery.

Post to: SOFTWARE INVASION 50 ELBOROUGH STREET SOUTHFIELDS LONDON SW18 5DN		
(Title) .....	(Qnty) .....	£
<input type="checkbox"/> (TAPE) <input type="checkbox"/> 40 TRACK		
<input type="checkbox"/> (DISK) <input type="checkbox"/> 80 TRACK (Please tick)		
(Title) .....	(Qnty) .....	£
<input type="checkbox"/> (TAPE) <input type="checkbox"/> 40 TRACK		
<input type="checkbox"/> (DISK) <input type="checkbox"/> 80 TRACK (Please tick)		
(Title) .....	(Qnty) .....	£
<input type="checkbox"/> (TAPE) <input type="checkbox"/> 40 TRACK		
<input type="checkbox"/> (DISK) <input type="checkbox"/> 80 TRACK (Please tick)		
(Title) .....	(Qnty) .....	£
<input type="checkbox"/> (TAPE) <input type="checkbox"/> 40 TRACK		
<input type="checkbox"/> (DISK) <input type="checkbox"/> 80 TRACK (Please tick)		
(Title) .....	(Qnty) .....	£
<input type="checkbox"/> (TAPE) <input type="checkbox"/> 40 TRACK		
<input type="checkbox"/> (DISK) <input type="checkbox"/> 80 TRACK (Please tick)		
		Total £

I enclose my cheque/P.O. for £ .....

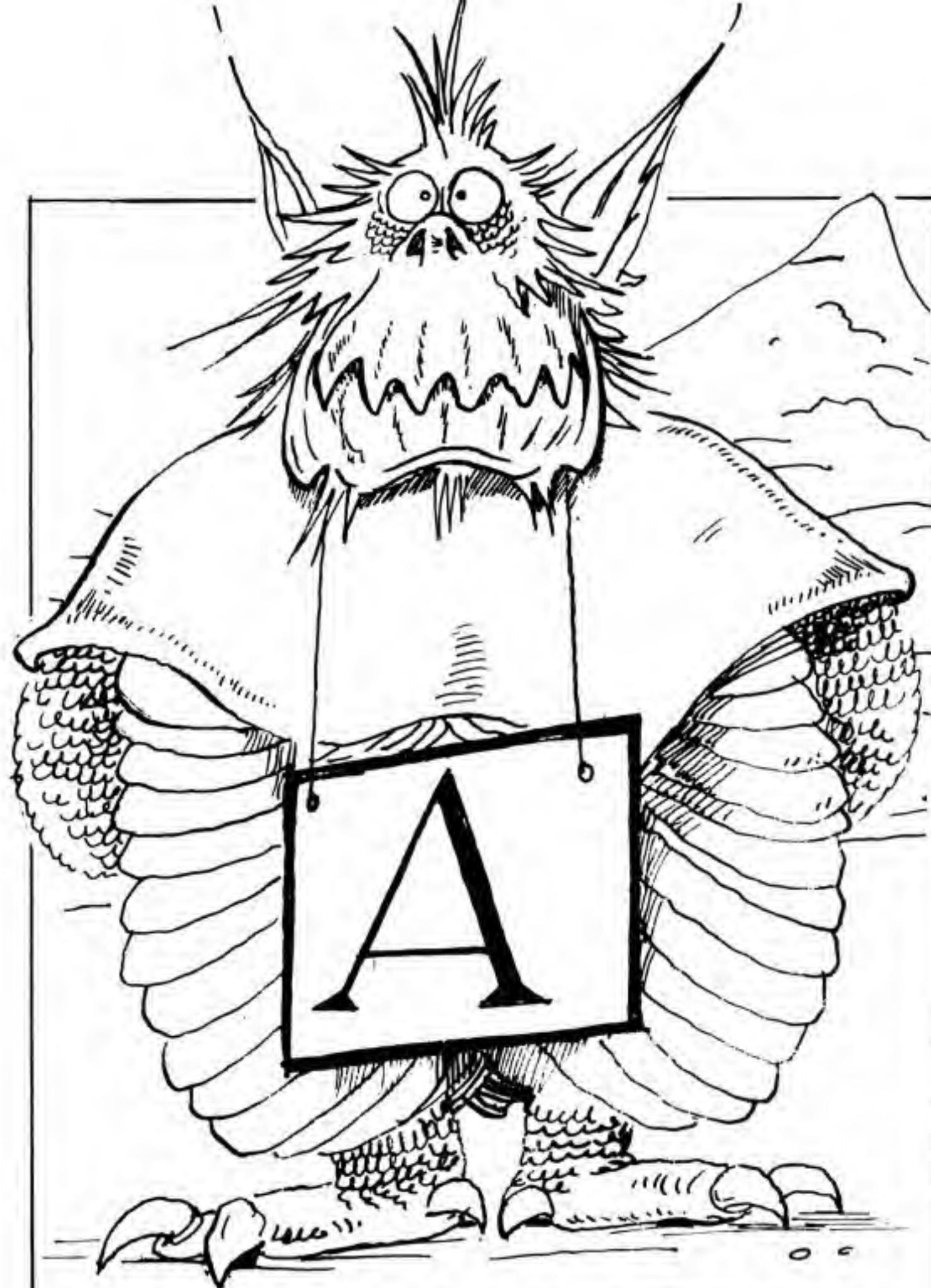
NAME .....

ADDRESS .....

TEL: (Day) ..... TEL: (Eve) .....

I am a Distributor/Multiple/Retailer/Dealer.  
Please contact me.

(Please delete whichever not applicable)



## DEFINER

**T**HIS ROUTINE can be used to work out user-defined characters. An eight by eight grid is displayed on the screen and a cursor can be moved round it using Q,W,U and 8. Squares can be filled by pressing Z and cleared by pressing X. Once the character is complete, press TAB to find the decimal values of each line. They can then be typed after VDU 23,224 and the character will then be displayed by pressing VDU 224.

**Definer** was written for the BBC computer by Edmund Quek of Mitcham, Surrey.

```

10 REM CHARACTER DEFINER
20 *KTV255
30 MODE1
40 *FX12,255
50 VDU23,8202,0,0,0;
60 VDU19,1,3,0,0,0;
70 VDU19,2,2,0,0,0;
80 VDU19,3,5,0,0,0;
90 GOTO210
100 DEFPROCGRID
110 GCOL0,2·MOVE0,1000
120 DRAW800,1000·DRAW800,200
130 DRAW0,200·DRAW0,1000
140 FORZ% = 1 TO7
150 MOVE(Z%*100),1000
160 DRAWZ%*100,200

```

```

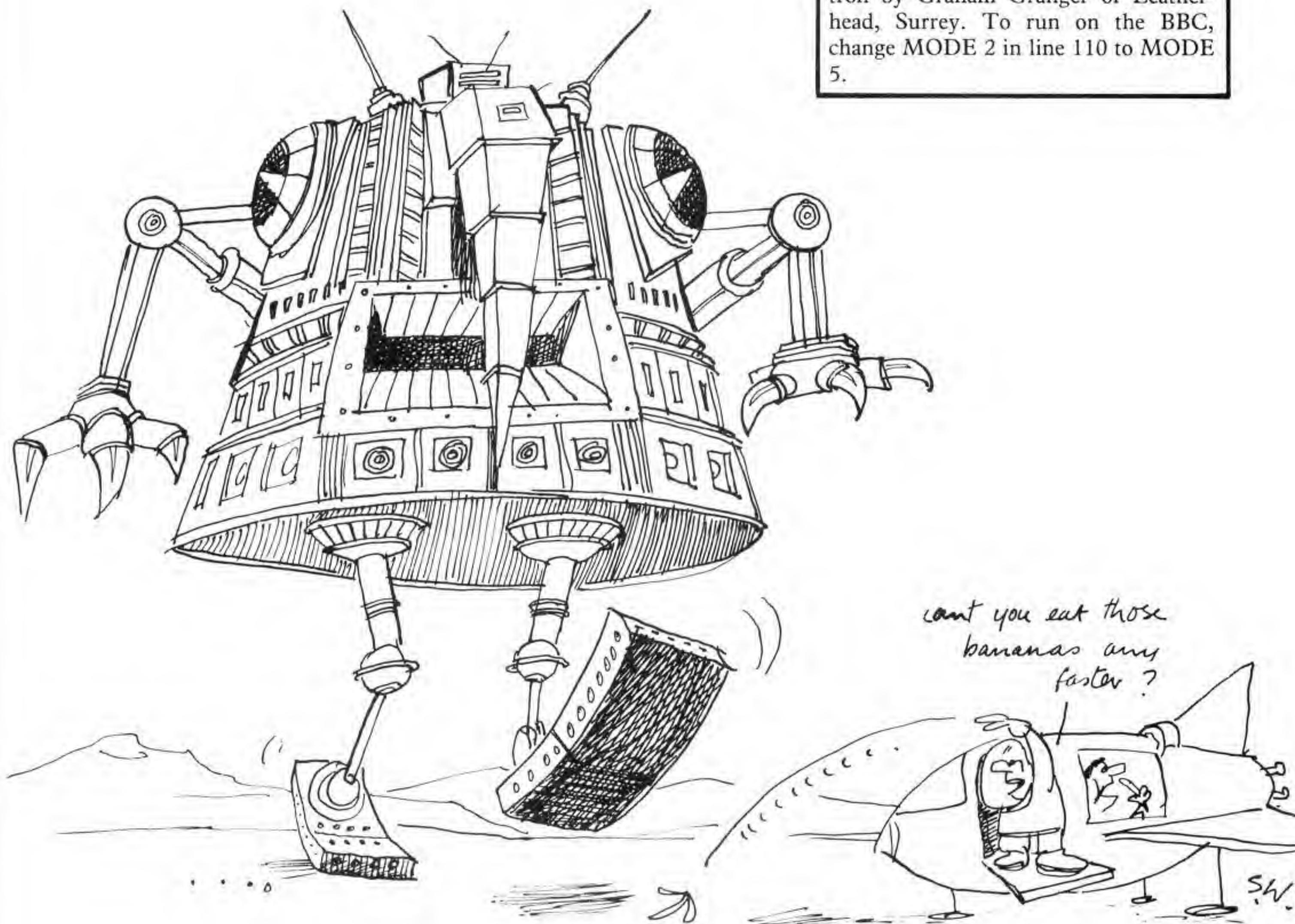
170 MOVE0,(200+Z%*100)
180 DRAW800,(200+Z%*100)
190 NEXTZ%
200 ENDPROC
210 PROCGRID
220 COLOUR1
230 PRINTTAB(0,26)"Use Q,W,U and U to Position cross over desired area. Press 'z' to fill in and 'x' to clear square. Press TAB to finish."
240 H=0·V=1000
250 IF#=INKEY$(0)
260 IF#="Q"ANDH>0THENH=H-100
270 IF#="W"ANDH<700THENH=H+100
280 IF#="B"ANDV<1000THENV=V+100
290 IF#="U"ANDV>300THENV=V-100
300 IF#="Z"THENPROCFILL
310 IF#="X"THENPROCUNFILL
320 IF INKEY(-97)THENPROCADD
330 VDU5·GCOL4,3
340 MOVEH,V·DRAWH+100,V-100
350 MOVEH,V-100·DRAWH+100,V
360 MOVEH,V·DRAWH+100,V-100
370 MOVEH,V-100·DRAWH+100,V
380 GOTO250
390 DEFPROCFILE·GCOL0,1
400 MOVEH,V·MOVEH+100,V
410 PLOT85,H+100,V-100
420 MOVEH,V-100·PLOT85,H,V
430 PROCGRID
440 SOUND1,-10,100,1
450 ENDPROC
460 DEFPROCUNFILE·GCOL0,0
470 MOVEH,V·MOVEH+100,V
480 PLOT85,H+100,V-100
490 MOVEH,V-100·PLOT85,H,V
500 SOUND1,-10,200,1
510 PROCGRID
520 ENDPROC
530 DEFPROCADD
540 FORZ% = 0 TO1 STEP-1
550 BIT=0·BIN=128
560 FORY% = 1 TO8
570 COL% = POINT(Y%*100-50,200+Z%*100-50)
580 IF COL% = 1 THEN BIT=BIT+BIN
590 BIN=BIN/2
600 NEXTY%
610 MOVE600,200+Z%*100-50·PRINT
TBIT
620 NEXTZ%
630 VDU4
640 PRINTTAB(0,36)"Press a key to define another character"
650 *FX21,0
660 N=GET·RUN

```

# Protector

**P**ROTECT the mothership from the dangerous Walkers, Bouncers and Droppers as well as the harmless Treader. Move left with Z, right with X, fire with RETURN and move upwards with SHIFT — gravity will pull you down again. Eight small mines are scattered round the screen. Seven of them are harmless but one is deadly and can disable your gunship if you shoot it in error.

**Protector** was written for the Electron by Graham Granger of Leatherhead, Surrey. To run on the BBC, change MODE 2 in line 110 to MODE 5.



# ectopic

20VDU23,243,1,7,168,174,1,1,0  
 ,0,23,242,244,20,2,1,182,146,146  
 ,36,23,243,244,20,2,1,182,146,16  
 4,18,23,240,5,31,119,191,119,11,  
 112,0,23,241,5,31,123,191,119,11  
 ,16,112  
 30VDU23,244,0,96,0,0,0,0,0,0,  
 23,245,0,24,0,0,0,0,0,23,246,0  
 ,6,0,0,0,0,0,0  
 40VDU23,249,219,60,106,255,15  
 3,66,230,7,23,250,90,189,86,255,  
 153,66,103,224,23,237,0,0,20,0,0  
 ,0,0,0,23,238,0,0,40,0,0,0,0,0  
 50VDU23,251,126,159,255,60,24  
 ,36,90,66,23,252,126,231,255,60,  
 24,36,66,153,23,253,126,249,255,  
 60,24,165,90,24  
 60VDU 23,230,126,219,231,60,2  
 19,189,60,219,23,232,129,129,219  
 ,126,60,24,36,36,23,231,0,0,24,6  
 0,126,219,165,165,23,234,0,0,12,  
 0,12,29,31,12,23,235,24,60,126,2  
 55,90,189,231,165,23,236,0,0,48,  
 0,48,184,248,48  
 70VDU23,225,102,195,219,126,6  
 0,24,0,0  
 80VDU23,228,90,102,189,102,0,  
 0,0,0,23,229,0,24,0,0,0,0,0,0  
 90VDU23,224,146,84,40,85,87,4  
 0,84,146,23,226,24,36,90,189,189  
 ,90,36,24,23,227,73,42,20,170,23  
 4,20,42,73  
 100VDU23,233,0,24,36,66,66,36,  
 24,0,23,254,0,0,16,40,40,16,0,0,  
 23,255,0,0,8,20,20,8,0,0  
 110MODE 2: VDU23,8202,0,0,0;  
 120HIGH=0  
 130HI\$="CRG"  
 140DIM LX(8):DIM LY(8)  
 150PROC\_BACKGROUND  
 160LHI% =0  
 170DLX=1:DLY=1  
 180EPX=1:EPY=1  
 190HHH=TRUE  
 200SHIPY% =200:ARRA=1  
 2100DY% =1:UDX% =1  
 220DRUP=0:FIT=0  
 230X% =0:Y% =3000:M\$="R":Y\$="U":  
 DX% =500:DY% =1100:SP% =100:K% =0:SK  
 =6:RK% =-200:RY% =RND(700)+200:PX%  
 =0:Q% =0:FX=FALSE:EX=70:LX=1:D% =24  
 9:UDX% =0:UX=251:UUX% =0:W% =3:J% =1:A  
 X=25:SHIPX% =-128:TTX=FALSE:FPX=FX  
 FALSE  
 240BX% =RND(500)+300:CBX% =BX% :BX% =  
 Y% =700:LBX% =BY% :CAT% =0  
 250PROC\_SETUP  
 260ENVELOPE1,2,-2,-2,-1,10,10,  
 50,126,-4,-4,-4,126,0  
 270ENVELOPE2,1,1,-125,105,40,2  
 25,77,124,17,-11,-33,-105,125  
 280ENVELOPE3,2,-1,-1,-1,255,25  
 5,255,126,0,0,-126,126,126  
 290ENVELOPE4,1,0,0,0,1,1,1,0,-  
 1,-2,-3,126,106  
 300PIT% =RND(60)  
 310PURP% =170/6  
 320L1% =RND(100)+100:L1Y% =RND  
 (450-(CLY% +100))+LY% +100  
 330MOVED1% =(-1Y% +140)/14:VDU23

```

0X-7:MOVEBX%,BY%:VDU 0X-7
1290IFF%:FALSE GCOL3,7:MOVECBX%
,CBY%:VDU 0U%:GCOL3,1:MOVECBX%,C
BY%:VDU 0U%-7
1300F%:TRUE
1310IFBY%>LY%+68ANDBY%<LY%+132A
NDBMX>480ANDBMX<736:PROCEND
1320ENDPROC
1330REM*****  

*****  

1340DEF PROC_MSHIP
1350IFCAT%:1:ENDPROC
1360GCOL3,2:MOVESHIP%=-64,SHIPY%
:VDU234,235,236
1370IFINKEY(-98)SHIP%:SHIP%=-5
1
1380IFINKEY(-67)SHIP%:SHIP%+=5
1
1390IFSHIPY%<GY%+182 AAA=0 ELSE
AAA=-32
1400IFINKEY(-1)HHH=FALSE
1410IFHHH=FALSE AAA=0
1420IFHHH=FALSE AND SHIPY%<500
AAA=32
1430SHIPY%:SHIPY%+AAA
1440MOVESHIP%=-64,SHIPY%:VDU234
,235,236
1450IFHHH=FALSE SOUND0,1,105,1

1460HHH=TRUE
1470ENDPROC
1480REM*****  

*****  

1490DEF PROC_DEC
1500IFRM%<-200 RM%:1280:RY%:RND
(550)+300:SOUND2,2,105,120
1510ENDPROC
1520REM*****  

*****  

1530DEF PROC_LAZ
154000%:0%
15500%:0%+1
1560IFD%:251 D%:249
1570FORN%:1TOWN%
1580IFN%:1 GOTO1630
1590IFLY(N%):0 GOTO1690
1600GCOL3,4:MOVEY(N%),LY(N%):V
DU D%
1610GCOL3,7:MOVEY(N%),LY(N%):V
DU D%-12
1620LX=LX(N%):OLY=LY(N%)
1630LX(N%):=LX(N%)+RND(50)-26
1640LY(N%):=LY(N%)-RND(50)
1650IFLK(N%):640 LX(N%):=LX(N%)+
32ELSE LX(N%):=LX(N%)-32
1660IFN%:1 GOTO1690
1670IFLY(N%):>GY%+68ANDLY(N%):LY
%+132ANDLX(N%):>480ANDLX(N%):<736
PROCEND
1680GCOL3,4:MOVEY(N%),LY(N%):V
DU D%:GCOL3,7:MOVEY(N%),LY(N%):V
DU D%-12
1690NEXT:ENDPROC
1700REM*****  

*****  

1710DEF PROC_SETUP
1720IFW%:7 W%:3
1730FORN%:1TOWN%:LX(N%):=RND(1280
):LY(N%):=1100:NEXT
1740ENDPROC
1750REM*****  

*****  

1760DEF PROC_SCORE(NY%)
1770GCOL0,0
1780MOVE80,957:PRINT,S%
1790MOVE73,956:PRINT,S%
1800S%:S%+NY%
1810GCOL0,7:MOVE80,957:PRINT,S%
1820GCOL0,1:MOVE73,956:PRINT,S%
1830ENDPROC
1840REM*****  

*****  

1850DEF PROC_SHIP_SETUP
1860REPEAT
1870GCOL3,2:MOVESHIP%=-64,GY%:1
50:VDU234,235,236
1880SHIP%:SHIP%+32
1890MOVESHIP%=-64,GY%:150:VDU23
4,235,236

```

```

1900FORN=GT0160:NEXT
1910UNTIL SHIPY%:600
1920SHIPY%:GY%+150
1930ENDPROC
1940REM*****  

*****  

1950DEF PROC_LP_MOTHER
1960GCOL3,3:MOVE544,LY%:100:VDU
254,253,255
1970GCOL3,5:MOVE544,LY%:100:VDU
224,226,227:ENDPROC
1980REM*****  

*****  

1990DEF PROC_BACKGROUND
2000CLS
2010VDU4
2020IFSY>HIGH COLOUR15:PRINTTAB
(2,10)"NEW HIGH SCORE-":COLOUR8
ELSE COLOUR7
2030PRINTTAB(0,6)"SCORE-":S%
2040COLOUR9
2050COLOUR4:PRINTTAB(4,15):CHR$2
49
2060COLOUR7:PRINTTAB(4,17):CHR$2
51
2070COLOUR6:PRINTTAB(3,19):CHR$2
40+CHR$248+CHR$242
2080COLOUR5:PRINTTAB(4,21):CHR$2
32
2090COLOUR1:PRINTTAB(0,3)"MINES
- -ONE IS":COLOUR3:PRINTTAB(6,3)
CHR$228
2100COLOUR10:PRINTTAB(14,9)"K1
VE*"
2110COLOUR3
2120PRINTTAB(5,15)"....."
2130PRINTTAB(5,17)"....."
2140PRINTTAB(6,19)"....."
2150PRINTTAB(5,21)"....."
2160COLOUR2
2170PRINTTAB(14,15)"20"
2180PRINTTAB(14,17)"50"
2190PRINTTAB(14,19)"100"
2200PRINTTAB(14,21)"200"
2210IFS%>HIGH OR S%>HIGH GOTO22
50ELSEHIGH=S%
2220FX15,0
2230COLOUR3:PRINTTAB(14,26)"---
":COLOUR1:PRINTTAB(3,25):INPUT"
YOUR NAME-?"HI"
2240IFLEN(HI$)>3 GOTO2230
2250COLOUR13:PRINTTAB(1,26)"SPR
LE-BAR TO PLAY!"
2260REPEAT:UNTIL INKEY(-99)
2270PRINTTAB(0,30)" ":"FORN=GT09
0:FORG=GT050:NEXT:PRINT" "(NEXT
2280VDUS
2290PROC_LAND

```

```

2300ENDPROC
2310REM*****  

*****  

2320DEF PROC_DROP
2330IFFIT=1F1T=0:SOUND3,3,253,6
0:GOT02350
2340GCOL3,5:MOVEDX%,DY%:VDU225
2350DY%:DY%:110
2360GCOL3,5:MOVEDX%,DY%:VDU225
2370IFDY%:200<GY% GCOL3,9:MOVED
%:32,DY%:32:DRAW640,GY%:84:PROC
END
2380ENDPROC
2390REM*****  

*****  

2400DEF PROC_CLEAR
2410MOVEDX%,DY%:GCOL3,5
2420IFDROP=0 VDU 0D%-18 ELSEVDU
225
2430ENDPROC
2440REM*****  

*****  

2450DEF PROC_WIPE(CG%,W%,WY%,C
$)
2460SOUND0,4,RND(4)+3,10
2470GCOL3,CG%:MOVEWX%,WY%:PRINT
C$:
2480ENDPROC
2490REM*****  

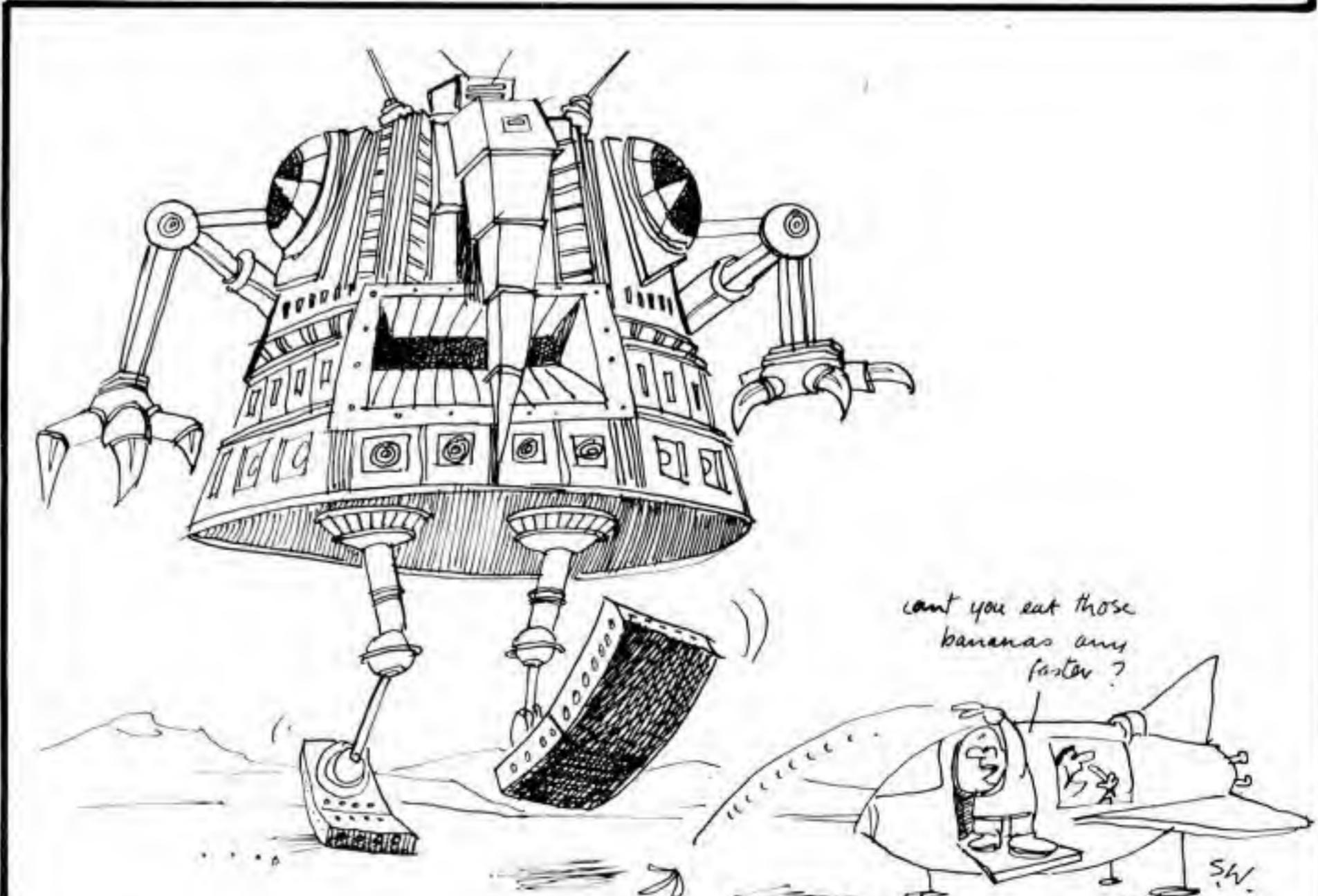
*****  

2500DEF PROC_MINE
2510IFCAT%:1:ENDPROC
2520IFMIX%:64>SHIP%:32ANDMIX%<
SHIP%:96ANDMIY%:16<SHIP%:ANDMIY
%>SHIP%:32 SOUND1,4,1,20:CAT%:1
:GCOL0,10:MOVESHIP%=-64,SHIP%:V
DU234,235,236
2530ENDPROC
2540REM*****  

*****  

2550DEF PROC_BURD_H1
2560GCOL0,4:MOVE60,974:DRAW1220
,974:DRAW1220,915:DRAW60,915:DRA
W60,974
2570J0%:0:RET%:FALSE
2580REPEAT
2590J0%:J0%+1
2600N%:10^J0%
2610IFHIGH-N%<-1 RET%:TRUE
2620UNTIL RET%:TRUE
2630LH1%:64*J0%
2640GCOL0,7:MOVE1205-LH1%,957:P
RINT:HIGH
2650GCOL0,1:MOVE1212-LH1%,956:P
RINT:HIGH
2660GCOL0,7:MOVE491,957:PRINT"(
"HI$")"
2670GCOL0,1:MOVE491,956:PRINT"(
"HI$")"
2680ENDPROC

```



# QUICKSILVA ARE THE GAME LORDS...

<b>SPECTRUM PROGRAMS</b>		<b>COMMODORE 64</b>
ANT ATTACK*	6.95	PURPLE TURTLES* 7.95
Sandy White		Mark & Richard Moore
GAMES DESIGNER*	14.95	AQUAPLANE* 7.95
John Hollis		John Hollis & Steve Hickman
BUGABOO*	6.95	RING OF POWER* 7.95
Indescomp		Mc Clemont & Fred Preston
TRAXX*	6.95	QUINTIC WARRIOR* 7.95
Jeff Minter/Salamander		T.P. Watts
GRIDRUNNER*	6.95	ULTISYNTH*‡ 14.95
Jeff Minter/Salamander		Nalin Sharma
SMUGGLERS COVE*	6.95	<b>BBC PROGRAMS</b>
John Keneally		THE GENERATORS* 6.95
VELNOR'S LAIR*	6.95	Dave Mendes
Derek Brewster		MINED OUT* 6.95
3D STRATEGY*	6.95	Ian Andrew & Ian Rowlings
Freddy Vachha		BEEB ART*‡ 14.95
XADOM*	6.95	Dave Mendes
Mike Moscoff		PROTECTOR 7.95
AQUAPLANE*	7.95	Andy Green
John Hollis		WIZARD 6.95
<b>ZX-81 PROGRAMS</b>		A.R. Buckley
QS DEFENDA	3.95	MUSIC PROCESSOR 14.95
Nick Lambert		Andy Williams
QS ASTEROIDS	3.95	<b>VIC20 PROGRAMS</b>
John Hollis		TORNADO
QS INVADERS	3.95	CHARTEC
Dave Edwards		SKYHAWK
QS SCRABBLE	3.95	CHARTEC
Dave Edwards		TRADE‡ 14.95
		PIXEL POWER 7.95
		PIXEL
		<b>ATARI PROGRAM</b>
		MAGIC WINDOW 8.95
		M. Walker
		<b>DRAGON PROGRAM</b>
		MINED OUT 5.95
		I. & C. Andrew
		<b>ELECTRON PROGRAM</b>
		MINED OUT* 6.95
		PIXEL

\* NEW RELEASES  
‡ SUPPLIED IN A BOX WITH BOOKLET

...and 1984  
is the year of  
The Game Lords

# QUICKSILVA

All games marketed exclusively by Quicksilva Limited.  
Please send me the games I have ticked.  
I enclose cheque/P.O. for \_\_\_\_\_  
Send to Quicksilva Mail Order,   Boots, W.H. Smiths, J. Menzies,  
P.O. Box 6, Microdealer, HMV, Hamleys,  
Wimborne, Dorset BA21 7PY. John Lewis, Computers for All  
Telephone: (0202) 891744 and all reputable specialist  
computer stores.

Name \_\_\_\_\_  
Address \_\_\_\_\_

WARNING: These programs are sold according to QUICKSILVA Ltd's  
terms of trade and conditions of sale. Copies of which are available on request.

# STORY

## electronic story writing and telling

FROM 5 YRS UPWARDS



## H & H SOFTWARE H

### PRESENTS 3 NEW TAPES

for the

### BBC 32K COMPUTER

to add to their existing range  
of games and educational software.

#### LOONEY LIFT

A new action packed arcade game with hi-res graphics, full colour and sound. Keep your guests jumping, operate the lift and watch out for the luggage. The alternative is the sack! £7.50

#### CHEMIPANT

Another first? A chemical plant simulation. Avoid explosions, spills and other disasters on your way to your first million. Plant manual included. Hi-res graphics. £7.50

#### STORY

Electronic storytelling!

First make up some scenes using pictures from the computer bank or use your own drawing skills. Then write your story. Up to 7 screens can be displayed, saved and printed. £6.50

To get more information about our new and existing software, ask for a catalogue. Please send a s.a.e.

★ ★ Disc versions available: please add £1.50 ★ ★

Please send orders and cheques/PO to:

**H & H Software, Dept AP3, 53 Holloway,  
Runcorn, Cheshire WA7 4TJ.**  
Tel: 09285 65566

```

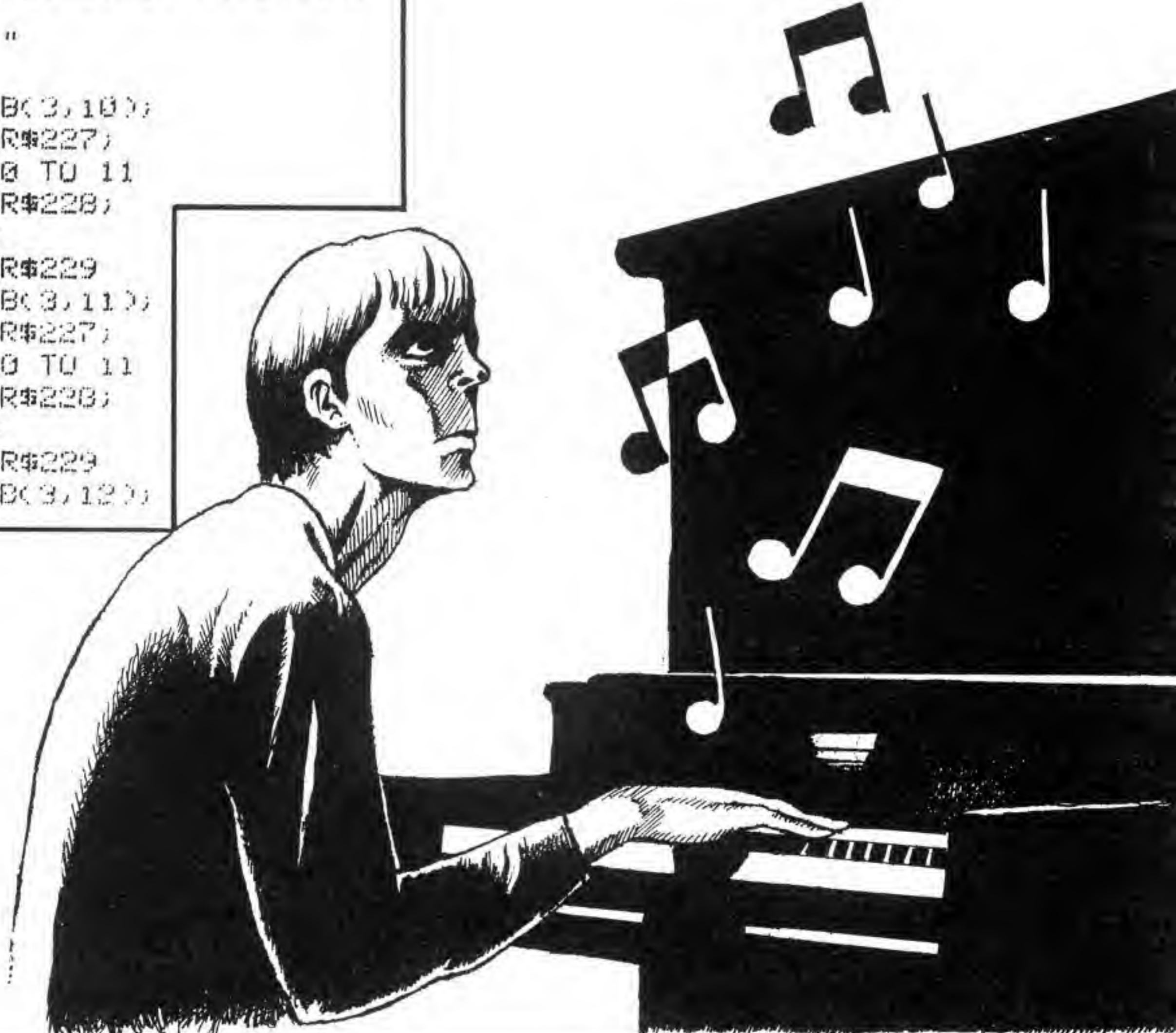
10 ON ERROR GOTO 20
20 MODE2
30 VDU23,8202,0,0,0,CLS,0,0,0
UR7
40 PRINTTAB(3,5);
50 VDU23,224,248,248,248,248,
248,248,248,248
60 VDU23,225,24,24,24,24,24,2
4,24,24
70 VDU23,226,31,31,31,31,31,3
1,31,31
80 VDU23,227,254,254,254,254,
254,254,254,254
90 VDU23,228,126,126,126,126,
126,126,126,126
100 VDU23,229,127,127,127,127,
127,127,127,127
110 VDU23,230,24,68,126,255,24
,24,24,24
120 VDU23,231,128,64,32,17,11,
7,15,31
130 VDU23,232,16,48,112,255,25
5,112,48,16
140 A$=CHR$224:B$=CHR$225:C$=C
HR$226
150 FOR s%=0TO2
160 PRINTTAB(3,7+s%);
170 FOR c%=0TO1
180 PRINTA$+B$+B$+C$+D$+B$+C$;
190 NEXTc%
200 PRINT" "
210 NEXTs%
220 PRINTTAB(3,10);
230 PRINTCHR$227)
240 FOR x%=0 TO 11
250 PRINTCHR$228;
260 NEXT x%
270 PRINTCHR$229
280 PRINTTAB(3,11);
290 PRINTCHR$227)
300 FOR x%=0 TO 11
310 PRINTCHR$228;
320 NEXT x%
330 PRINTCHR$229
340 PRINTTAB(3,12);

```

# KEYBOARD

**K**EYBOARD permits its user to play tunes on the BBC B by pressing keys. The BBC can be used as a piano, an organ, as a synthesiser, or in "fantasy" mode. The program will RUN on an Electron, although the sound effects will not be so varied or realistic. It can also be RUN in Mode 5 on the BBC A.

Written by Philip and Stephen Gales of Hornchurch, Essex.



```

350 PRINTCHR$227
360 FOR x% = 0 TO 11
370 PRINTCHR$228
380 NEXT x%
390 PRINTCHR$229
400 FOR x% = 0 TO 12
410 COLOUR10:PRINTTABC(3+x%),CHR$230
420 NEXT x%
430 FOR z% = 0 TO 2
440 COLOUR13:PRINTTABC(3+z%,5):CHR$231
450 NEXT z%
460 FOR z% = 0 TO 1
470 PRINTTABC(7+z%,5):CHR$231:NEXT z%
480 FOR z% = 0 TO 2
490 PRINTTABC(10+z%,5):CHR$231:NEXT z%
500 FOR z% = 0 TO 1
510 PRINTTABC(14+z%,5):CHR$231:NEXT z%
520 COLOUR14:PRINTTABC(3,4):"12
3 56 890 ↑"
530 COLOUR9:PRINTTABC(3,15):"t0
WERTYUIOP@L"
540 COLOUR7
550 PROCX
560 *KEY0 e
570 *KEY1 f
580 *KEY2 g
590 *KEY3 h
600 *KEY4 i
610 PROCENV1
620 *FX11,30
630 *FX12,20
640 B$="102W3ER5T6YU8I900PQ^ED"
-
650 B$=INKEY$(0)
660 IF INKEY(-1) OF=19:PROCSTOP:GOTO 740
670 IF B$="e" PROCENV1
680 IF B$="f" PROCENV2
690 IF B$="g" PROCENV3
700 IF B$="h" PROCENV4
710 IF B$="i" PROCENV5
720 F=INSTR(C$,B$)+1
730 IF B$="" THEN 650 ELSEPROCSTOP
740 SOUND1,1,(F*4)-4,5
750 IF INKEY(-99)PROCSTOP
760 IF INKEY(-98)PROCSTOP
770 IF INKEY(-105)PROCSTOP
780 COLOUR7:PROCX
790 GOTO650
800 DEFPROCSTOP:$FX15,0
810 ENDPROC
820 DEFPROCENV2:COLOUR1:PRINTTABC(2,20):"f1= XYLOPHONE MODE ":"E
NVELOPE1,1,0,0,1,1,1,1,-4,-12,-4

```

```

,-4,126,100:FOR T=0 TO 1000:NEXT
ENDPROC
830 DEFPROCENV1:COLOUR4:PRINTTABC(2,19):"f0= PIANO MODE ":"E
NVELOPE1,1,0,0,0,1,1,1,-1,-3,-1,-
1,126,100:FOR T=0 TO 1000:NEXT:E
NDPROC
840 DEFPROCENV3:COLOUR2:PRINTTABC(2,21):"f2= ORGAN MODE ":"E
NVELOPE1,5,1,-1,1,1,1,1,-4,-12,-4
,-4,126,100:FOR T=0 TO 1000:NEXT
ENDPROC
850 DEFPROCENV4:COLOUR5:PRINTTABC(2,22):"f3= FANTASY MODE ":"E
NVELOPE1,1,100,10,100,1,10,1,-1
,-3,-1,-126,126,100:FOR T=0 TO 1
000:NEXT:ENDPROC
860 DEFPROCENV5:COLOUR9:PRINTTABC(2,23):"f4= SYNTH MODE ":"E
NVELOPE1,1,0,10,0,1,1,1,-1,-3,-1
,-126,126,100:FOR T=0 TO 1000:NEX
T:ENDPROC
870 DEFPROCUD
880 FOR i% = 0 TO 45
890 SOUND1,-15,i%,1
900 SOUND2,-15,i%,1
910 SOUND3,-15,i%,1
920 NEXT i%
930 ENDPROC
940 DEFPROCOD
950 FOR 4% = 45 TO 0 STEP -1
960 SOUND1,-15,4%,1
970 SOUND2,-15,4%,1
980 SOUND3,-15,4%,1
990 NEXT 4%
1000 ENDPROC
1010 DEFPROCDE
1020 FOR a% = -15 TO 0
1030 SOUND8,a%,4,4
1040 NEXT a%
1050 ENDPROC
1060 DEFPROCX
1070 PRINTTABC(2,19):"f0= PIANO
MODE"
1080 PRINTTABC(2,20):"f1= XYLOPH
ONE MODE"
1090 PRINTTABC(2,21):"f2= ORGAN
MODE"
1100 PRINTTABC(2,22):"f3= FANTAS
Y MODE"
1110 PRINTTABC(2,23):"f4= SYNTH
MODE"
1120 PRINTTABC(2,24):"2 = UP SYN
TH"
1130 PRINTTABC(2,25):"/ = Down S
YNTH"
1140 PRINTTABC(2,26):"SP= EXPLOSION"
1150 ENDPROC

```

# BBC SPEECH

## PRICE BREAKTHROUGH

### Speech Synthesizer For The BBC Computer

Totally unlimited vocabulary is now possible with the revolutionary "SWEET TALKER" Speech Synthesizer for the B.B.C. A or B Microcomputer, any series.

The CHEETAH "SWEET TALKER" simply plugs into speech socket IC99 within the computer.

No soldering, no cutting of tracks, no headaches.

Based on an allophone system you can easily program any word, sentence or phrase and incorporate speech into your software games.

Fully tested and guaranteed.

Complete with demonstration cassette and full instructions.

*Price includes V.A.T., Postage and Packing.*

*Delivery normally 14 days.*

*Export orders at no extra cost.*

*Dealer enquiries welcome.*

*Send cheque/PO now to:-*

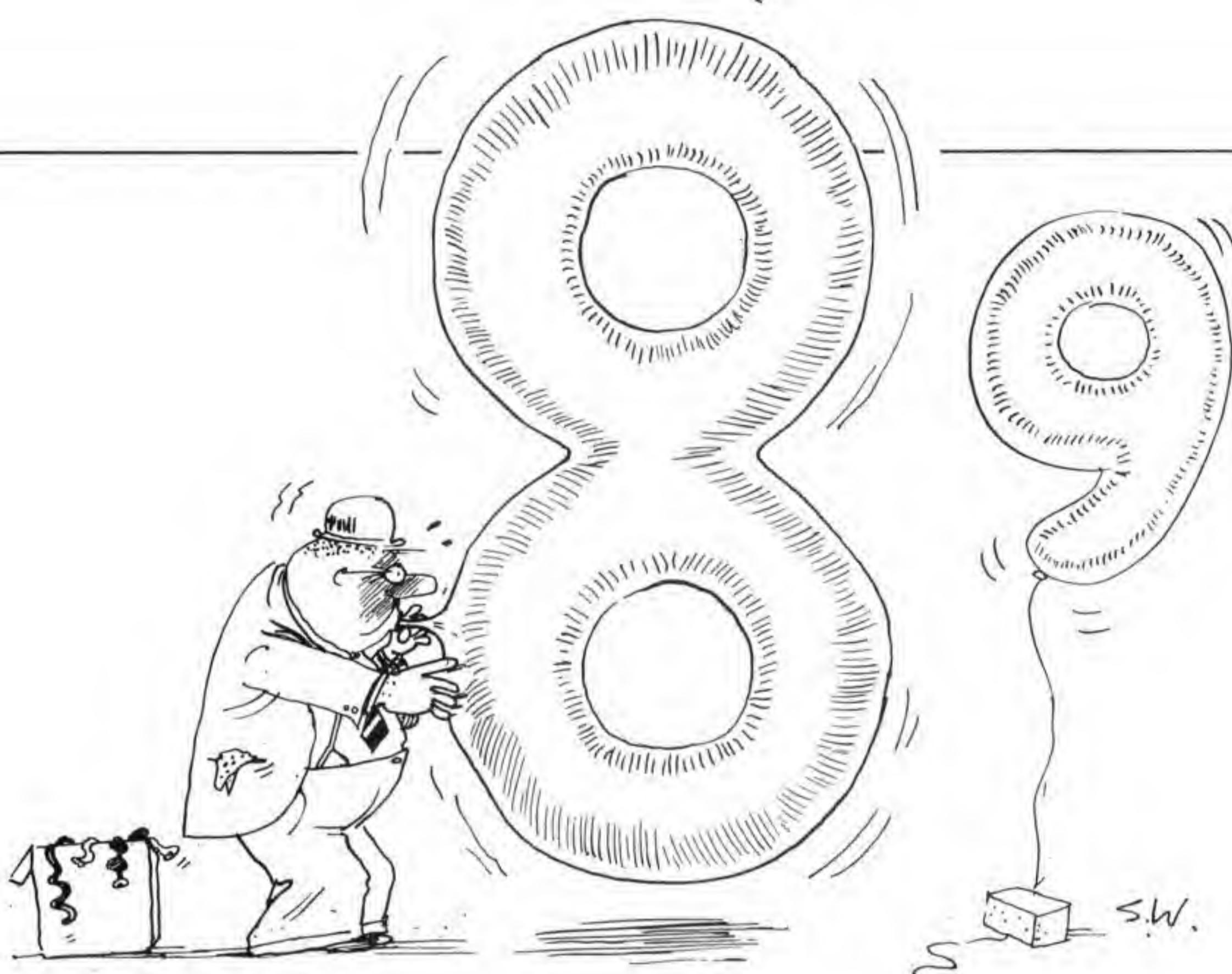
Simply  
Incredible at

**£24.95**

**CHEETAH MARKETING LIMITED**  
Dept. AP3, 24 Ray Street, London EC1. Tel: 01 278 6954

*Cheetah, products available from*

*branches of* **John Menzies** **Boots** **WHSMITH**  *and Rumbelows*



# Octal Characters

Octal Characters incorporates a short assembly language routine which converts decimal to binary. When RUN the program will print any character typed-in eight times larger than normal size.

Written for the BBC B and Electron by C J Locke of Winscombe, Avon.



10 REM >> DECIMAL TO BINARY ROUTINE

```

20 FOR I% = 0 TO 2 STEP 2
30 PX = &D00
40 LOPT I%
50 .START
60 CLC
70 ROL&70
80 BCC SPACE
90 LDA&255
100 JSR&FFEE
110 JMP CHECK
120 .SPACE
130 LDA&32
140 JSR&FFEE
150 .CHECK
160 LDA&70
170 BEQ FINISH
180 JMP START
190 .FINISH
200 RTS:1
210 NEXT I%
220 REM >> MAIN PROGRAM
230 MODE 0
240 VDU 23,8202,0,0,0
250 VDU 23,255,0,&18,&7E,&7E,&
FF,&7E,&7E,&18
260 VDU 19,0,4,0,19,1,3,0
270 REPEAT
280 R=GET
290 Z=&C000+(8*(R-32))
300 FOR X=2 TO Z+7
310 ?&70=?X
320 CALL&D00
330 PRINT
340 NEXT X
350 UNTIL FALSE

```

# GOLD SEARCH

**A**LARGE GRID is displayed on the screen and in one of the squares on that grid gold is hidden. Move your man round the screen by entering the co-ordinates of the square to which he must move. After each turn the direction in which the

gold can be found will be displayed and a section of the screen in which the gold is not present will be blocked-off.

**Gold Search** was written for the BBC B and Electron by A Beesley of Abingdon, Oxon, who has used it at school for educational purposes.

```
10REM ** A D BEELEY 1983 **
20REM ** 52 WHITEHORN'S WAYS, D
RAYTON **

30REM ** ABINGDON, OXON. OX14
4LH **

40REM ** 06295031186 **

50MODE1
60FX11,0
70DIMNN(11),SC(11)
80FORJ=1TO10:NEXTJ
"BBC Computer" : SC(J)=0:NEXTJ
90SC(10)=0:T=20
100CLS
110PROCINSTRUCTION
120GX=((RND(22)-1)*50)+110:GY=
((RND(16)-1)*50)+237:GOLD=0
130BX=50
140VDU24,0,110,1279,1623
150VDU28,0,30,29,29
160COLOUR128
170VDU23,240,28,28,0,127,8,26,
34,65
180VDU5
190PROCSCREEN
```

```
200REPEAT
210PROCGRID
220PROCMOVE
230PROCMOVEMAN
240PROCHECK
250T=T-1:BU=BU-10:IFBU<0THENBU
=0
260UNTILT<=0 OR GOLD=99
270VDU4:CLS
280VDU5:CLG
290IF GOLD=99 THEN120
300PROCEND
310GOTO90
320DEFFPROCMOVEMAN
330VDU5
340GCOL4,1
350NX=(X*50)+110:NY=(Y*50)+237
360MOVE NX,NY
370VDU240
380ENDPROC
390DEFFPROCINSTRUCTION
400COLOUR2:PRINT"**S E A R C
H F O R G O L D"
410PRINT"-----
```



```

420IFX15,0
430PRINT"Hello, may I have yo
ur name Please?"
440INPUTN$(10)
450N$(10)=LEFT$(N$(10),16)
460IFN$(10)=""THEN430
470PRINT
480PRINT" In this game you hav
e to find as many Pots of Gold
as you can. You have got 20 m
oves, and after each move you ar
e given a clue as to the direc
tion the Gold is in."
490PRINT"You are also given a
visual clue, due to the fact
that part of the area you need
n't search is blotted out in whi
te."
500PRINT"Enter your choice by
using co-ordinates, enter the nu
mbers with a comma between them
: E.G. 12,4"
510PRINT"      SEARCH VERY CAR
EFULLY"
520PRINT"      Any key to sta
rt"
530PROCSPACE
540ENDPROC
550DEFPROCSPACE

```

```

560VDU23;8282;0;0;0
570A#=INKEY$(10000)
580 ENDPROC
590DEFPROCSCREEN
600GCOL0,129:CLG
610GCOL0,2
620MOVE1200,200:DRFW100,200:DR
AW100,1000
630FORY%=200T01100STEP50:MOVE1
00,Y%:DRAW90,Y%:NEXTY%
640FORX%=100T01200STEP50:MOVEX
%,200:DRAWX%,190:NEXTX%
650G=47
660FORX%=110T0560STEP50:G=G+1:
MOVEX%,180:VDUG:NEXTX%
670G=47
680FORX%=610T01060STEP50:G=G+1:
MOVEX%,180:VDU49:MOVEX%,150:VDU
G:NEXTX%
690G=47
700FORX%=1110T01160STEP50:G=G+1:
MOVEX%,180:VDU50:MOVEX%,150:VDU
G:NEXTX%
710G=47
720FORY%=240T0690STEP50:G=G+1:
MOVE60,Y%:VDUG:NEXTY%
730G=47
740FORY%=740T0990STEP50:G=G+1:
MOVE60,Y%:VDUG:NEXTY%
750FORY%=740T0390STEP50:MOVE36

```

```

,Y%,VDU49:NEXTY%
760ENDPROC
770DEFFPROCGRID
780GCOL0,0:FOR%Y=150TO1200STEP
50:MOVEY%,1000:DRAWY%,200:NEXTY%
790FORY%>250TO1050STEP50:MOVE1
200,Y%:DRAW100,Y%:NEXTY%
800ENDPROC
810DEFFPROCMOVE
820VDU4
830*FX15,0
840PRINT"Score = ";S(100)" is
here now"
850INPUTM,Y
860IFM>2100Y>DURY<DURY>15THENY
DU7:GOTO840
870ENDPROC
880DEFFPROCHECK
890VDU4
900IFNX>GX AND NY<GY THENPRINT
"You've done it - you found the
gold." :S(10)=S(10)+T+BD:PROCSOUN
D:R$=INKEY$(1000):GOLD=99:PRINT
:ENDPROC
910PRINT"Left: ";T;" Go: "
920IF NY>GY THENPRINT"south"
930IF NY<GY THENPRINT"north"
940IF NX>GX THENPRINT"east"
950IF NX<GX THENPRINT"west"
960PRINT" of ";X;";";Y
970VDUS
980GCOL1,3
990IFNX>GX THEN A=NX-10:PROCE
1000IFNX=GX THEN A=NX-10:B=NX+4
0:PROCWE
1010IFNX<GX THEN A=NX+40:PROCW
1020IFNY>GY THEN A=NY-37:PROCH
1030IFNY<GY THEN A=NY+13:PROCS
1040IFNY=GY THEN A=NY-27:B=NY+1
3:PROCNS
1050PROCMOVEMAN
1060ENDPROC
1070DEFFPROC
1080MOVE100,A:MOVE100,1000:PL0T
85,1200,1000:MOVE1200,A:PL0T85,1
00,A
1090ENDPROC
1100DEFFPROC
1110MOVE100,A:MOVE100,200:PL0T
85,1200,200:MOVE1200,A:PL0T85,100
,A
1120ENDPROC
1130DEFFPROC
1140MOVEA,200:MOVE1200,200:PL0T
85,1200,1000:MOVEA,1000:PL0T85,A
,200
1150ENDPROC
1160DEFFPROCW
1170MOVEA,200:MOVE100,200:PL0T8

```

```

5,100,1000:MOVEA,1000:PL0T85,A,2
00
1180ENDPROC
1190DEFFPROCNS
1200MOVE100,B:MOVE100,1000:PL0T
85,1200,1000:MOVE1200,B:PL0T85,1
00,B:MOVE100,A:MOVE100,200:PL0T
85,1200,200:MOVE1200,A:PL0T85,100
,A
1210ENDPROC
1220DEFFPROCWE
1230MOVEA,200:MOVE100,200:PL0T8
5,100,1000:MOVEA,1000:PL0T85,A,2
00:MOVEB,200:MOVE1200,200:PL0T85
,1200,1000:MOVEB,1000:PL0T85,B,2
00
1240ENDPROC
1250DEFFPROCEND
1260MOVE0,1000
1270PRINT"** SEARCH S
C O R E B O A R D"
1280PRINT"-----"
1290FORL=1TO10
1300IFS(L)<S(L+1)THENF$=N$(L):N
$(L)=N$(L+1):F=S(L):S(L)=S(L+1):N
$(L+1)=F$:S(L+1)=F:L=0
1310NEXTL
1320PRINT
1330PRINT" TOP TEN SCORES"
1340PRINT'
1350FORJ=1TO10
1360PRINTS(J);";";N$(J)
1370NEXT
1380PROCSOUND
1390*FX15,0
1400R$=INKEY$(1000)
1410ENDPROC
1420DEFFPROCSOUND
1430ENVELOPES,7,2,1,1,1,1,1,1,1,21
,-10,-5,-2,120,120
1440SOUND2,3,200,20
1450ENDPROC

```





# HIGH LOW

THE COMPUTER will pick a card and the player must guess whether the next card will be higher or lower in value and bet on that guess. The aim is to win £5,000 in 10 turns.

**High-Low** was written for the BBC B and Electron by Andrew Everitt of Wantage, Oxon.

```

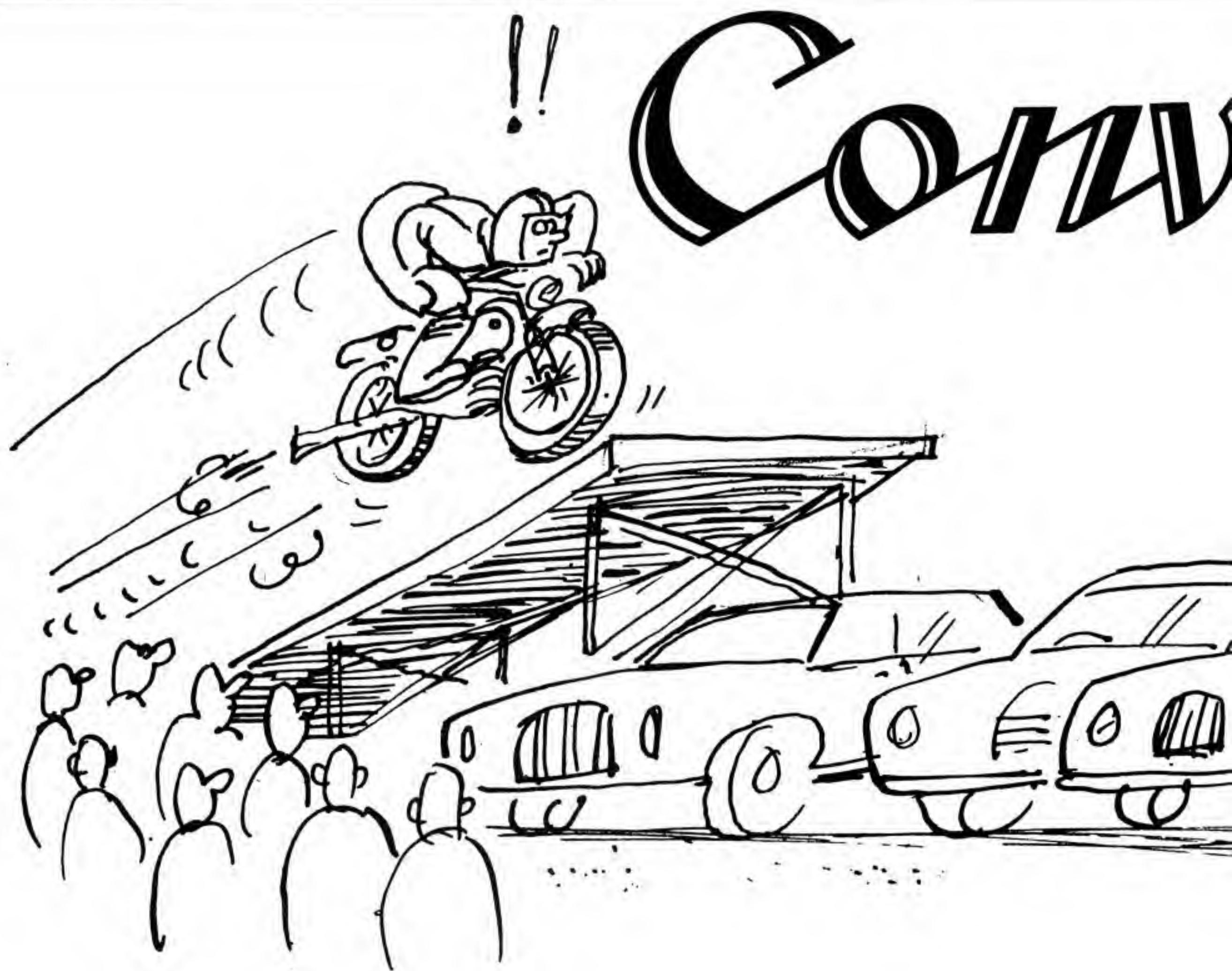
10 CLS
20 A=200
30 PRINT"YOU START WITH £200"
40 PRINT"YOU HAVE 10 GOES TO
GET TO REACH £5000"
50 PRINT:PRINT:PRINT" THE AIM
IS TO SAY WHETHER THE NEXT CARD
WILL BE HIGHER OR LOWER THAN THE
LAST CARD."
60 PRINT" EACH TIME, YOU GET
A CHANCE TO BET SOMEMONEY ON YOU
R CHOICE"
70 PRINT" YOUR MINIMUM
BET IS £50"
80 PRINT TAB(0,25),"PRESS ANY
KEY TO START"
90 E=GET
100 C=RND(12)+1
110 FOR B=1 TO 10
120 CLS
130 PRINT"GO NUMBER ";B
140 PRINT:PRINT
150 PRINTTAB(12,1),"YOU HAVE £
";A
160 PRINT:PRINT
170 PRINT"YOUR CARD IS A ";C
180 D=RND(12)+1
190 PRINT"DO YOU THINK THE NEX
T CARD IS HIGHER(H) OR LOWER(L)?
"
200 A$=GET$
210 IF A$<>"H" AND A$<>"L" THEN
  VDU7:GOTO200
220 PRINT:INPUT"HOW MUCH DO WA
NT TO BET? £";F

```

```

230 IF F<50 THEN PRINT"MINIMUM
IS £50":GOTO 220
240 IF F>A THEN PRINT"YOU HAVE
ONLY GOT £";A:GOTO210
250 PRINT:PRINT
260 IF A$="H" AND D>C OR A$="L
" AND D<C THEN PRINTCHR$(136);C
" CORRECT":A=A+F ELSEPRINTCHR$(136)
;"WRONG":A=A-F
270 PRINT"THE CARD WAS A ";D
280 IF A<50 THEN 380
290 IF A>=5000 THEN 360
300 C=D
310 PRINT"PRESS ANY KEY TO CON
TINUE"
320 E=GET
330 NEXT
340 PRINT" YOU DID NOT MAKE I
T TO THE TARGET BUT STILL WON £"
;A
350 PRINT:PRINT:GOTO 400
360 PRINT"WELL DONE...YOU HAVE
WON THE CAR IN ";B;" GOES
"
370 PRINT:PRINT:GOTO 400
380 PRINT"YOU HAVE RUN OUT OF
MONEY"
390 PRINT"YOU LASTED ";B;" GOE
S"
400 PRINT"DO YOU WANT ANOTHER
GO(Y/N)"
410 E$=GET$
420 IF E$="Y" OR E$="y" THEN R
UN ELSE END

```



```

10 REM*** PROGRAM FOR CONVERS
ION OF METRIC AND IMPERIAL UNITS
***  

20 REM*** BY IAN TAYLOR ***
100 MODE6
110 DIM M$(20):N=0
120 PROC_colour
200 CLS:PRINTTAB(0,1)"THIS PRO
GRAM WILL CONVERT METRIC UNITS
TO IMPERIAL AND VISA VERA."
210 PRINTTAB(0,4)"THE ANSWERS
TO THE CONVERSIONS WILL BE STOR
ED IN MEMORY UNTIL THE PROGRAM I
S ENDED."
220 PRINTTAB(0,8)"THE MEMORY C
AN BE REVIEWED AFTER EACH CONV
ERSION."
230 INPUTTAB(0,11)"PRESS 'RETU
RN' KEY TO CONTINUE..."  

240 REPEAT UNTIL A=INKEY(-24)
290
300 CLS:PRINTTAB(1,3)"DO YOU W
ANT TO -"
310 PRINTTAB(3,5)"(1) CONVERT
METRIC UNITS TO IMPERIAL"
320 PRINTTAB(1,7)"OR"
330 PRINTTAB(3,9)"(2) CONVERT
IMPERIAL UNITS TO METRIC"
340 PRINTTAB(1,12)"ENTER PROCE
DURE NUMBER...":GOTO 400
350
360 PRINT:PRINT M$(N)
370 PROCstore:PROCselect
390
400 ON INSTR("1234",GET#)GOTO
410,430,450,5000 ELSE 400
410 PROCmenu_met_imp
420 YZ=Y%*100+1000:GOTO YZ
430 PROCmenu_imp_met

```

```

440 Z%=2%*100+3000:GOTO Z%
450 PROCmem:PROCselect:GOTO
400
990
1000 REM*** MET. TO IMP. CONVER
SIONS**
1100 CLS:PRINTTAB(1,2)"PROGRAM
(1)"
1110 PRINT:INPUT"ENTER TEMPERAT
URE IN DEGREES C.":C
1120 F=(((C*9)/5)+32
1130 M$(N)=STR$(C)+" DEGREES C.
= "+STR$(F)+" DEGREES F.":GOTO 3
60
1200 CLS:PRINTTAB(1,2)"PROGRAM
(2)"
1210 PRINT:INPUT"ENTER DISTANCE
IN CMS...":C
1220 I=C*0.3937
TR$(I)+" INS.":GOTO 360
1300 CLS:PRINTTAB(1,2)"PROGRAM
(3)"
1310 PRINT:INPUT"ENTER DISTANCE
IN METRES...":M
1320 F=M/0.30481:t=INT F:I=(F-t
)*12
1330 IF I<0.1 THEN I=0
1340 M$(N)=STR$(M)+" METRES = "
+STR$(F)+" FEET"+"
0 R "+STR$(t)+" FEET "+STR$(I)+" 1
NS.":GOTO 360
1400 CLS:PRINTTAB(1,2)"PROGRAM
(4)"
1410 PRINT:INPUT"ENTER DISTANCE
IN KILOMETRES...":K
1420 M=K*0.621
1430 M$(N)=STR$(K)+" KM. = "+ST
R$(M)+" MILES":GOTO 360
1500 CLS:PRINTTAB(1,2)"PROGRAM
(5)"
1510 PRINT:INPUT"ENTER AREA IN
90. CMS...":C
1520 I=C*0.155
1530 M$(N)=STR$(C)+" SQ. CMS. = "
+STR$(I)+" SQ. INS.":GOTO 360
1600 CLS:PRINTTAB(1,2)"PROGRAM
(6)"
1610 PRINT:INPUT"ENTER AREA IN
90. METRES...":M
1620 Y=M*1.196:f=Y*9
1630 M$(N)=STR$(M)+" SQ. M. = "
+STR$(F)+" SQ. FT.
OR "+STR$(Y)+" SQ. YDS.":GO
TO 360
1700 CLS:PRINTTAB(1,2)"PROGRAM
(7)"
1710 PRINT:INPUT"ENTER AREA IN
90. KILOMETRES...":K
1720 M=K*0.3861:a=k*247.1
1730 M$(N)=STR$(K)+" SQ. KM. = "
+STR$(M)+" SQ. MILES
OR "+STR$(a)+" ACRES":GO
TO 360
1800 CLS:PRINTTAB(1,2)"PROGRAM
(8)"
1810 PRINT:INPUT"ENTER VOLUME I
N CU. CMS...":C
1820 I=C*0.061
1830 M$(N)=STR$(C)+" CU. CMS. = "
+STR$(I)+" CU. INS.":GOTO 360
1900 CLS:PRINTTAB(1,2)"PROGRAM
(9)"
1910 PRINT:INPUT"ENTER VOLUME I
N CU. METRES...":M
1920 F=M*35.31:y=M*1.308
1930 M$(N)=STR$(M)+" CU. M. = "
+STR$(F)+" CU. FT.
OR "+STR$(Y)+" CU. YDS.":G

```

# converter

CONVERTER will convert a wide range of metric units to Imperial, or Imperial units to metric, and store the results in memory for easy reference. Written for the BBC B and Electron by Ian Taylor of Newton-le-Willows, Merseyside.



```

360
2000 CLS:PRINTTAB(1,2)"PROGRAM
(10)"
2010 PRINT:INPUT"ENTER WEIGHT I
N GRAMMES...","g
2020 o=g*0.035
2030 M$(N)=STR$(g)+" GMS. = "+$T
R$(o)+" OZS." :GOTO 360
2100 CLS:PRINTTAB(1,2)"PROGRAM
(11)"
2110 PRINT:INPUT"ENTER WEIGHT I
N KILOGRAMMES...","k
2120 P=k*2.20465:1=INTP:o=(P-1)
*16
2130 IF o<0.1 THEN o=0
2140 M$(N)=STR$(k)+" KG. = "+$T
R$(o)+" LBS.
OR "+STR$(1)+" LBS. "+STR$(o)+"
OZS.":GOTO 360
2200 CLS:PRINTTAB(1,2)"PROGRAM
(12)"
2210 PRINT:INPUT"ENTER WEIGHT I
N KILOGRAMMES...","k
2220 t=k/1016.05
2230 M$(N)=STR$(t)+" KG. = "+$T
R$(t)+" TONS":GOTO 360
2300 CLS:PRINTTAB(1,2)"PROGRAM
(13)"
2310 PRINT:INPUT"ENTER VOLUME I
N LITRES...","l
2320 P=1*1.759819=P/8
2330 M$(N)=STR$(l)+" LITRES = "
+$TR$(P)+" PINTS
OR "+STR$(9)+" GALLONS":GOTO
360
2400 CLS:PRINTTAB(1,2)"PROGRAM
(14)"
2410 PRINT:INPUT"ENTER VOLUME I
N LITRES...","l

```

```

2420 o=1/0.0284
2430 M$(N)=STR$(l)+" LITRES = "
+$TR$(o)+" FL. OZS.":GOTO 360
3000 REM*** IMP. TO MET. CONVER
SIONS**
3100 CLS:PRINTTAB(1,2)"PROGRAM
(1)"
3110 PRINT:INPUT"ENTER TEMPERAT
URE IN DEGREES F...","f
3120 c=(f-32)*5/9
3130 M$(N)=STR$(f)+" DEGREES F.
= "+STR$(c)+" DEGREES C.":GOTO 3
60
3200 CLS:PRINTTAB(1,2)"PROGRAM
(2)"
3210 PRINT:INPUT"ENTER DISTANCE
IN INCHES...","i
3220 c=i*2.54
3230 M$(N)=STR$(i)+" INS. = "+$T
R$(c)+" CMS.":GOTO 360
3300 CLS:PRINTTAB(1,2)"PROGRAM
(3)"
3310 PRINT"ENTER DISTANCE IN FE
ET AND INCHES"
3320 PRINT:INPUT"FEET....","f
3330 INPUT"INCHES...":i
3340 m=(f+1/12)*0.3048
3350 M$(N)=STR$(f)+" FT. "+STR$(
i)+" INS. = "+STR$(m)+" METRES"
:GOTO 360
3400 CLS:PRINTTAB(1,2)"PROGRAM
(4)"
3410 PRINT:INPUT"ENTER DISTANCE
IN MILES...","m
3420 k=m*1.60934
3430 M$(N)=STR$(m)+" MILES = "+$T
R$(k)+" KM.":GOTO 360
3500 CLS:PRINTTAB(1,2)"PROGRAM
(5)"

```

```

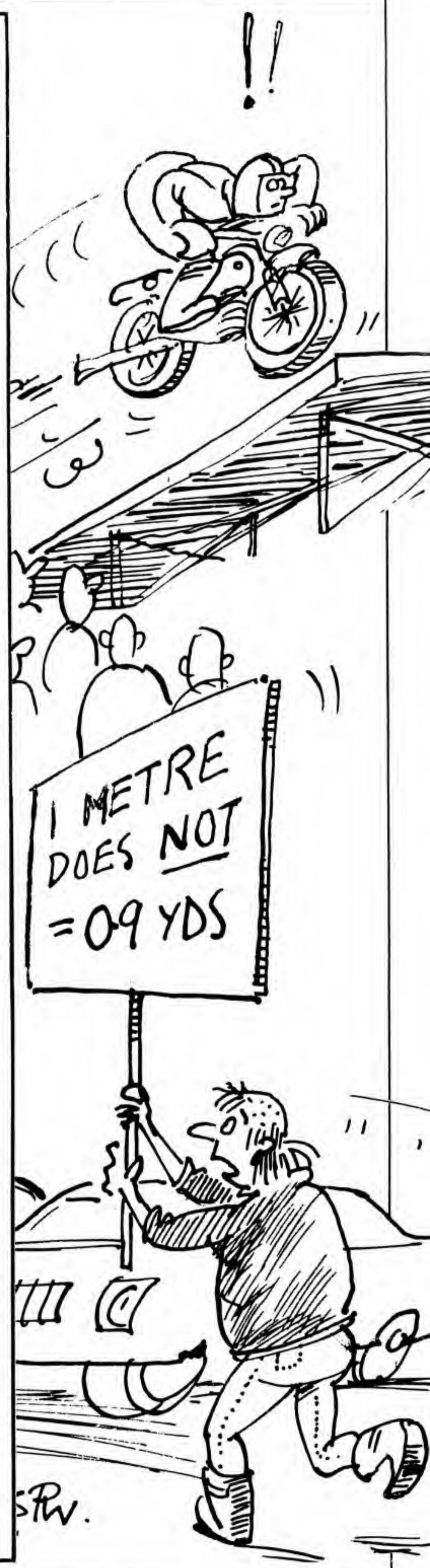
3510 PRINT:INPUT"ENTER AREA IN
SQ. INS...":i
3520 c=i*6.425
3530 M$(N)=STR$(i)+" SQ. INS. = "
+$TR$(c)+" SQ. CMS.":GOTO 360
3600 CLS:PRINTTAB(1,2)"PROGRAM
(6)"
3610 PRINT:PRINT"ENTER AREA IN
SQ. FT. OR SQ. YDS."
3620 PRINT:INPUT"SQ. YDS...":y
3630 INPUT"SQ. FT....":f
3640 m=(f*0.0929)+(y*0.8361)
3650 M$(N)=STR$(y)+" SQ. YDS.
AND/OR "+STR$(f)+" SQ. FT.
= "+STR$(m)+" SQ. METRES
":GOTO 360
3700 CLS:PRINTTAB(1,2)"PROGRAM
(7)"
3710 PRINT:PRINT"ENTER AREA IN
SQ. MILES OR ACRES"
3720 PRINT:INPUT"SQ. MILES...":m
3730 INPUT"ACRES.....":a
3740 k=(m*2.59)+(a*0.00405)
3750 M$(N)=STR$(m)+" SQ. MILES
AND/OR "+STR$(a)+" ACRES
= "+STR$(k)+" SQ. KM.":GU
TO 360
3800 CLS:PRINTTAB(1,2)"PROGRAM
(8)"
3810 PRINT:INPUT"ENTER VOLUME I
N CUBIC INCHES...":i
3820 c=i*16.387
3830 M$(N)=STR$(i)+" CU. INS. = "
+$TR$(c)+" CU. CMS.":GOTO 360
3900 CLS:PRINTTAB(1,2)"PROGRAM
(9)"
3910 PRINT:PRINT"ENTER VOLUME I
N CU. YDS. OR CU. FT."

```

```

3920 PRINT:INPUT"CU. YDS..."/9
3930 INPUT"CU. FT..."/f
3940 m=(y*0.765)+(f*0.0283)
3950 M$C(N)=STR$(y)+" CU. YDS.
AND/OR "+STR$(f)+" CU. FT.
= "+STR$(m)+" CU. METRE
"!GOTO 360
4000 CLS:PRINTTAB(1,2)"PROGRAM
(10)"
4010 PRINT:INPUT"ENTER WEIGHT I
N OUNCES..."/o
4020 g=o*28.35
4030 M$C(N)=STR$(o)+" OZS. = "+S
TR$(g)+" GRAMMES":GOTO 360
4100 CLS:PRINTTAB(1,2)"PROGRAM
(11)"
4110 PRINT:PRINT"ENTER WEIGHT I
N LBS. AND/OR OZS."
4120 PRINT:INPUT"LBS..."/1
4130 INPUT"OZS..."/o
4140 k=(1*8.4536)+(o*0.02835)
4150 M$C(N)=STR$(1)+" LBS. AND/
OR "+STR$(o)+" OZS.
= "+STR$(k)+" KG.":GOTO 36
8
4200 CLS:PRINTTAB(1,2)"PROGRAM
(12)"
4210 PRINT:INPUT"ENTER WEIGHT I
N TONS..."/t
4220 k=t*1016.05
4230 M$C(N)=STR$(t)+" TONS = "+S
TR$(k)+" KG.":GOTO 360
4300 CLS:PRINTTAB(1,2)"PROGRAM
(13)"
4310 PRINT:PRINT"ENTER VOLUME I
N GALS. AND/OR PINTS"
4320 PRINT:INPUT"GALS..."/g
4330 INPUT"PINTS..."/p
4340 l=(g*4.546)+(p*0.568)
4350 M$C(N)=STR$(g)+" GALS. AND
/OR "+STR$(p)+" PINTS
= "+STR$(l)+" LITRES":G
OTO 360
4400 CLS:PRINTTAB(1,2)"PROGRAM
(14)"
4410 PRINT:INPUT"ENTER VOLUME I
N FLUID OZS..."/o
4420 l=o*0.0284
4430 M$C(N)=STR$(o)+" FL. OZS. = "+S
TR$(l)+" LITRES"
4990
5000 CLS:PRINTTAB(2,1)"OK. PR
GRAM ENDED."
5010 END
5020
6000 DEF PROCmenu_met_IMP
6005 PROCUColour
6010 CLS:PRINTTAB(1,1)"TU CONVE
RT"
6020 PRINT
6030 PRINT" (1) DEGREES C. TO D
EGREES F."
6040 PRINT" (2) CMS. TO INS."
6050 PRINT" (3) METRES TO FEET
& INS."
6060 PRINT" (4) KILOMETRES TO M
ILES"
6070 PRINT" (5) SQ. CMS. TO SQ.
INS."
6080 PRINT" (6) SQ. METRES TO S
Q. FT./YDS."
6090 PRINT" (7) SQ. KM. TO SQ.
MILES/ACRES"
6100 PRINT" (8) CU. CMS. TO CU.
INS."
6110 PRINT" (9) CU. METRES TO C
U. FT./YDS."
6120 PRINT"(10) GRAMMES TO OUNC
ES"
6130 PRINT"(11) KG. TO LBS.& OZ
"
6140 PRINT"(12) KG. TO TONS"
6150 PRINT"(13) LITRES TO PINTS
/GALLONS"
6160 PRINT"(14) LITRES TO FLUID
OZ."
6165 PRINT:PRINT"ENTER REQUIRED
PROGRAM NUMBER..."
6166 PRINT"THEN PRESS 'RETURN'
KEY."
6167 INPUTTAB(33,18)Y%
6170 ENDPROC
6175
6180 DEF PROCmenu_IMP_Met
6185 PROCUColour
6190 CLS:PRINTTAB(1,1)"TU CONVE
RT"
6200 PRINT
6210 PRINT" (1) DEGREES F. TO D
EGREES C."
6214 PRINT" (2) INS. TO CMS."
6215 PRINT" (3) FEET & INS. TO
METRES"
6240 PRINT" (4) MILES TO KILOME
TRES"
6250 PRINT" (5) SQ. INS. TO SQ.
CMS."
6260 PRINT" (6) SQ. FT./YDS. TO
SQ. METRES"
6270 PRINT" (7) SQ. MILES/ACRES
TO SQ. KM."
6280 PRINT" (8) CU. INS. TO CU.
INS."
6290 PRINT" (9) CU. FT./YDS. TO
CU. METRES"
6300 PRINT"(10) OUNCES TO GRAMM
ES"
6310 PRINT"(11) LBS.& OZ. TO KG
."
6320 PRINT"(12) TONS TO KG."
6330 PRINT"(13) PINTS/GALLONS T
O LITRES"
6340 PRINT"(14) FLUID OZ. TO L1
TRES"
6345 PRINT:PRINT"ENTER REQUIRED
PROGRAM NUMBER..."
6346 PRINT"THEN PRESS 'RETURN'
KEY."
6347 INPUTTAB(33,18)Y%
6350 ENDPROC
6355
6360 DEF PROCselect
6370 PROCUColour
6380 CLS:PRINTTAB(1,3)"DO YOU W
ANT TO: "
6400 PRINTTAB(3,5)"(1) CONVERT
ANY MORE"
6410 PRINTTAB(7,6)"METRIC UNITS
TO IMPERIAL"
6430 PRINTTAB(3,8)"(2) CONVERT
ANY MORE"
6440 PRINTTAB(7,9)"IMPERIAL UNI
TS TO METRIC"
6460 PRINTTAB(3,11)"(3) REVIEW
INFORMATION IN MEMORY"
6480 PRINTTAB(3,14)"(4) END THE
PROGRAM"
6490 PRINTTAB(1,17)"ENTER PROCE
DURE NUMBER...";PR
6500 ENDPROC
6590
6600 DEF PROCdelay_2
6610 NOW=TIME
6620 REPEAT UNTIL TIME-NOW=200
6630 ENDPROC
6690
6700 DEF PROCstore
6710 N=N+1
6720 PROCdelay_2
6730 PRINT:PRINT:PRINT:INPUT"CA
LCULATION STORED IN MEMORY...PRE
SS RETURN KEY TO CONTINUE",A
6740 REPEAT UNTIL A=INKEY-74
6750 ENDPROC
6790
6800 DEF PROCmem
6810 PROCUColour:LL9:VDU14
6820 IF N=0 PRINTTAB(10,1)"MEMO
RY CLEAR."
6830 FOR M=0 TO N
6840 PRINT:PRINT M$C(M)
6850 NEXT
6860 PRINT:INPUT"PRESS 'RETURN'
KEY TO CONTINUE...";A
6870 REPEAT UNTIL A=INKEY-74
6880 ENDPROC
6890
6900 DEFPROCUColour
6910 Q=RND(6)
6920 VDU19,0,7,0
6930 VDU19,120,0,0
6940 ENDPROC

```



## FAIRHURST INSTRUMENTS LTD OF WILMSLOW

FACT 90% OF OUR CUSTOMERS ARE  
RECOMMENDED TO US . . .

### WHY?

PHONE OUR SALES TEAM NOW WITH ANY  
QUERIES ON ALL ASPECTS OF THE BBC MICRO.  
WE ARE TRUE SPECIALISTS IN HARDWARE  
AND SOFTWARE.

MAIL ORDER AVAILABLE  
PHONE (0625-525694)

### CARRYING CASE FOR BBC & TAPE/DISK UNIT

INCORPORATING A DESK TOP CONSOLE

Made of highly durable, extremely rugged ABS  
material Briefcase style construction. Moulded  
compartments to house units. Lid detaches for  
use as TV/Monitor stand. £35 including p&p.

EXTRON SOFTWARE  
99 WESTGATE, GRANTHAM, LINCS.  
TEL: (0476) 70907

# Micro-Aid

SUPERIOR SOFTWARE  
FOR THE BBC MICRO

## SPELL-CHECK £17.95

MEMO-CALC	£12.95
CASHBOOK	£11.95
LEDGER	£11.95
MAILING	£11.95
PAYROLL	£24.95
STATPACK	£9.95
FRENCH ABROAD	£7.95
GERMAN ABROAD	£7.95
UTILITY-A	£5.95

Add VAT. Postage inclusive.  
Send for FREE Brochure.

25 Fore street,  
Praze-an-Beeble,  
Camborne,  
Cornwall. TR14 0JX. England.

Tel: (0209) 831274

AP3

# 2 Acorn programs

*Top listings for the BBC B  
and the Electron*

**PLUS** software  
reviews and news

Every two months for  
only 95p

Make sure of your  
copy, subscribe today

The complete software  
companion for the  
BBC B and Electron

Mail to: ECC Publications Limited: 196-200 Balls Pond Road, London N1 4AQ

Yes — I'd like to subscribe to **Acorn Programs** (6 issues — price £6)

I enclose a cheque for £ \_\_\_\_\_ Please charge my credit card:

Card name \_\_\_\_\_ Number \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

N.B. This offer applies to U.K. subscribers only. Overseas rates available on request.

```

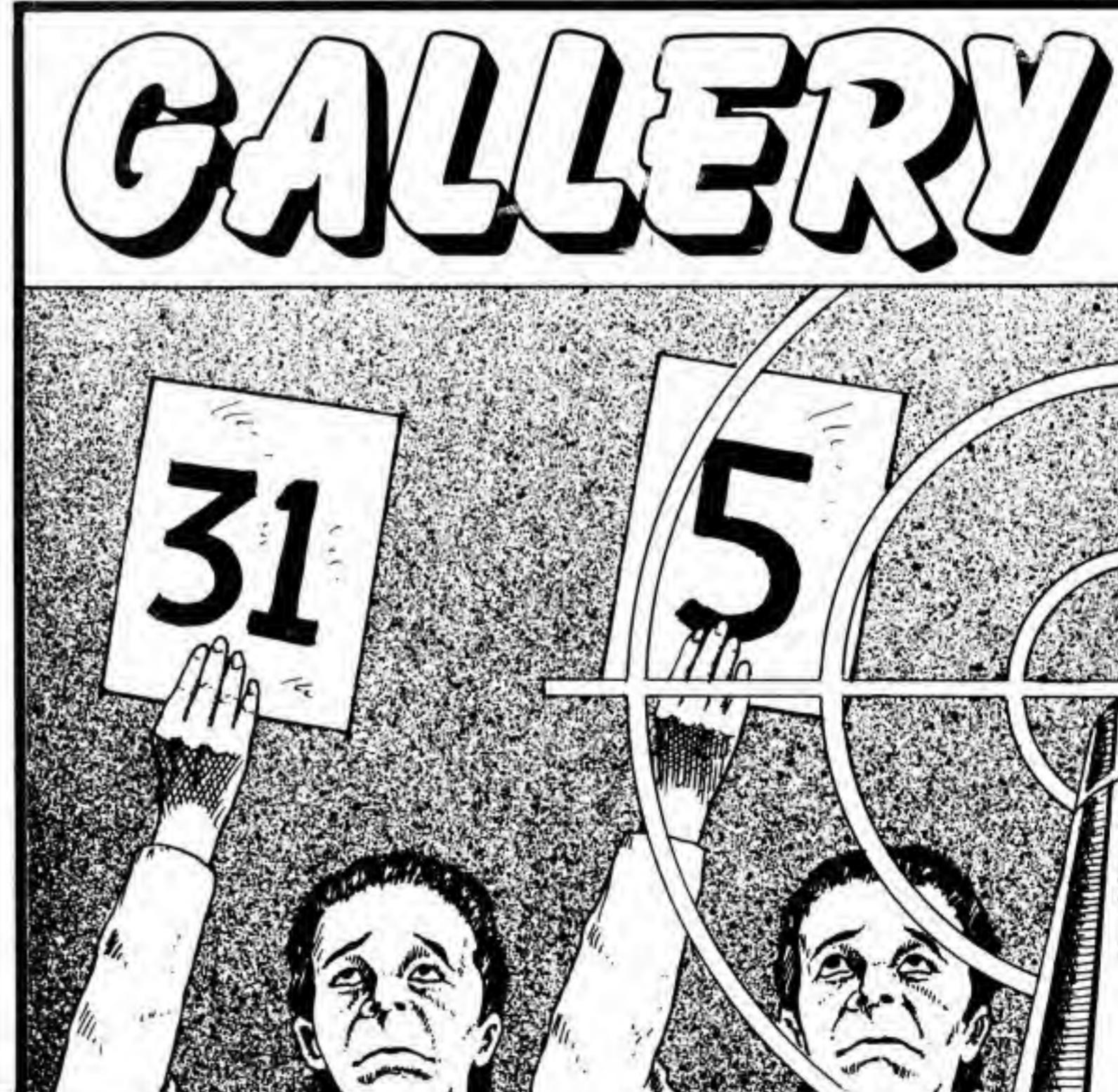
1REM *****
2REM * Shooting Galleries *
3REM * M. H. Turney *
4REM * St. Patricks Sch. *
5REM * Rheindahlen *
6REM * BFPD 40 *
7REM * 11.12.1983 *
8REM *****
9
10UN ERROR RUN
15REM set screen down a space
20*TV255
30MODE7:PROC RULES
35REM main Program structure
40MODE5
50:
60PROCINIT
70:
80PROCTITLE
90:
100FOR Z=1 TO 30:REM adjust shots here
110:
115REM random Pause before man appears
120FOR W=1 TO RND(500)+1000:NEX
T
125REM clear hit/miss line
130PRINTTAB(0,8);SPC20
140:
150PROCFIGURE
160:
170PROCANALYSE
180:
190NEXT Z
200:
210PROCCREDIT
220:
230PROCMOREGO
240:
250END
260:
265REM draw man at rnd Pos. and look for shot
270DEFFIGURE
275REM choose Position of man
280A=RND(10)*2-1
285REM adjust for skill Previously shown
290IF K=0 THEN B=B-1 ELSE B=B+
1
300IF B<0 THEN B=0
305REM compute number of jumps man makes
310V=3+B:REM adjust speed here
315REM flush buffer to stop next shot being spoilt
320*FX15,1
325REM draw man
330FOR X=1 TO V
340PRINTTAB(R,10);CHR$(240)

```

```

350PROCPAUSE
360PRINTTAB(R,10);CHR$(242)
370PROCPAUSE
380PRINTTAB(R,10);CHR$(241)
390PROCPAUSE
400PRINTTAB(R,10);CHR$(242)
410PROCPAUSE
415REM look for shot fired
420IF R$="INKEY$()":IF R$<>"48"
OR R$<>"57" THEN R$=""
425REM stop loop if shot fired
430IF R$="" THEN X=Y
440NEXT X
445REM kill man
450PRINTTAB(R,10);"
460ENDPROC
470
475REM analyse R$
480DEF PROCANALYSE
485REM make appropriate sound
490IF R$<>"" THEN ENVELOPE2,3,
0,0,0,0,0,121,-10,-5,-2,120,12
0:SOUND0,2,5,5 ELSE SOUND1,-15,2
0,5
495REM adjust for 0 being Pressed
500IF R$="0" THEN R$="10"
505REM increase score if shot correct
510T=VAL(R$):IF T*2-1=A THEN SCORE=SCORE+1
515REM adjust skill factor
520IFT*2-1=A THEN K=0 ELSE K=1
525REM Print result of shot
530IF T*2-1=A THEN PRINTTAB(0,
8);"* HIT *" ELSE PRINTTAB(10,8)
;"* MISS *"

```



```

535REM Print score
540PRINTTAB(6,15);"00-";2;TAB(3,17);"SCORE-";SCORE
550ENDPROC
560:
565REM standard pause
570DEFPROCPRUSE
580FOR T=1 TO 100
590NEXT T
600ENDPROC
610:
615REM Print rules of game
620DEF PROCRULES
630CLS
640FOR X=0 TO 1:PRINTTAB(0,0+X)CHR$141CHR$131STRING$(34,"#")
650PRINTTAB(0,2+X)CHR$141CHR$131"SHOOTING GALLEY"
660PRINTTAB(0,4+X)CHR$141CHR$131STRING$(34,"#"):NEXT
670PRINT"" When the game starts you will see "" a little man
680POP UP over a number. "" If you Press the same number key, "" you will be able to shoot the man. "" A running total of shots taken and
690PRINT"hits scored will appear under the "" target. "" You will have 30 shots."
700R$=GET
710ENDPROC
720:
725REM Print suitable phrase a

```

**T**EN NUMBERS are displayed on the screen. Flying figures will appear above the numbers and by pressing the relevant number on the keyboard they can be shot down. You have 30 shots.

**Gallery** was written for the BBC B by M Turney of Rheindalen.



```

b end of game
730DEF PROCREDIT
740SC=SCORE
750IF SC<10 THEN PRINT"Practice makes"/"Perfect...."
760IF SC>=10 AND SC<20 THEN PRINT"Not bad I suppose!"
770IF SC>=20 AND SC<30 THEN PRINT"Very good indeed!!!!"
780IF SC=30 THEN PRINT"* CRACK SHOT, EH! *"
790ENDPROC
800:
805REM initialise variables etc.
810DEF PROCINIT
815REM switch off cursor OS 1:
820VDU23,1,0;0;0;0;
825REM create characters for drawing man
830VDU23,240,28,28,8,28,42,85,
840,20
840VDU23,241,28,93,42,28,8,20,
84,65
850VDU23,242,28,28,8,127,8,20,
84,20
855REM switch off auto repeat
860*FX11,0
865REM choose yellow for display
870COLOUR2
875REM initialise score
880SCORE=0
885REM initialise skill factor
890B=4:K=0
900ENDPROC
910:
915REM draw screen titles
920DEF PROCTITLE
930PRINTTAB(0,2)STRING$(20,"E")
940PRINTTAB(0,4);"# SHOOTING GALLERY #":PRINTTAB(0,6)STRING$(20,"#")
940PRINTTAB(0,12);" 1 2 3 4 5
6 7 8 9 0"
950PRINTTAB(0,13)STRING$(20,"_")
960ENDPROC
970:
975REM ask for another go
980DEF PROCMOREGO
990FOR W=1 TO 100:PROCPRUSE:NEXT
1000CLS
1010PRINTTAB(0,10);"Would you like""another go (Y/N)""
1020R$=GET$
1030IF R$="Y" THEN RUN
1040ENDPROC
1050:

```

# Take flight this winter...

## ...with the most diverse simulators available

### I'M FREDDIE—FLY ME!



...a 747 flight simulator...but I was disappointed with it...basic program unbearable. But, I would like to recommend another flight simulator —F for Freddie—a machine language program from Kansas City Systems. —Popular Computing Weekly

### F FOR FREDDIE IS THE HARDEST GAME THAT YOU WILL EVERPLAY!

Requires absolute concentration to prepare, take-off, fly and land a tri-star jet at varying destinations using a staggering 36 control keys!

If you only play the arcade type of game, needing just a couple of keys and the space bar to play, then this is most certainly not for you.

If however, you are prepared to sit at your computer for literally hours on end getting to grips, and then give a considerable amount of effort and time into actually trying to solve it, then this is definitely for you.

Though F for Freddie is a flight simulator type of game, it is not one with simple operation and the ground appearing at the front of you, but is as accurate a simulation of not only flight, but preparation, take-off and the many more occurrences associated with flying a tri-star jet as a 32K micro will allow.

Controls? A mind boggling 36 of them! And it is here where the logic and skill comes in, as everything must be done not only in the correct order but at the right time. Yes, it's in real time, with the clock ticking relentlessly away.

But the great asset of this 'game' is that every little piece of information you require is shown on the screen, nearly fifty in all, continuously being updated, with the colours being cleverly used to depict different, changing, situations.

Eventually you will master the take-off, then even manage to fly and at long last manage to land. But unlike all other games, at this stage you don't put it away for ever, for you have seven different destinations, all on different courses and distances...

There are plenty of instructions on the 36 controls and even a little advice, but as the whole thing is a colossal challenge, you are not told how to fly Freddie, this you have to discover entirely for yourself...

At times you will wish, as most certainly will your family, that you never bought the blasted thing!

£9.50 Vat and post paid

KANSAS the longest established software publishers in the business, now in our sixth year, backed by 27 years media publishing from the same address!

The service is the best in the country. Every order is cleared the very same day it is received, whether cheque or credit card, and despatched by our private Post Office collection at 4.30 every working day. All first class and by the faster metered mail.

Best of all is our guarantee. Should any program fail, no matter how caused, it will be replaced absolutely free of charge, this year, next year or in ten years...yes, it's guaranteed for life!

Programs are on cassette and for BBC model B

If you want delivery tomorrow, simply ring before 4pm using an Access or Barclaycard

The most realistic computer flying experience you can have!

### FIGHTER PILOT

With a true 3D cockpit view and accurate eight direction joystick control, this just has to be the most realistic computer flying experience you can get.

As a fighter pilot you have to destroy the enemy planes before they get to your cities. Control of movement is by joystick: climb, bank and climb starboard, bank starboard, bank and dive starboard, dive, bank and dive port, bank port, bank and climb port, all giving infinite control. Throttle, firing and all other controls are on the keyboard.

At the start of the game you have a view of the runway and it is up to you to take your fighter off without mishap. As you climb away, you switch on the radar, which will show you the position of the enemy. As you get closer the plane will appear on the screen and then it is up to you to get it in your sights and blast away with your air-to-air missile. Certain enemy planes have kamakazi instincts and will dive at your cities, then you are in trouble!

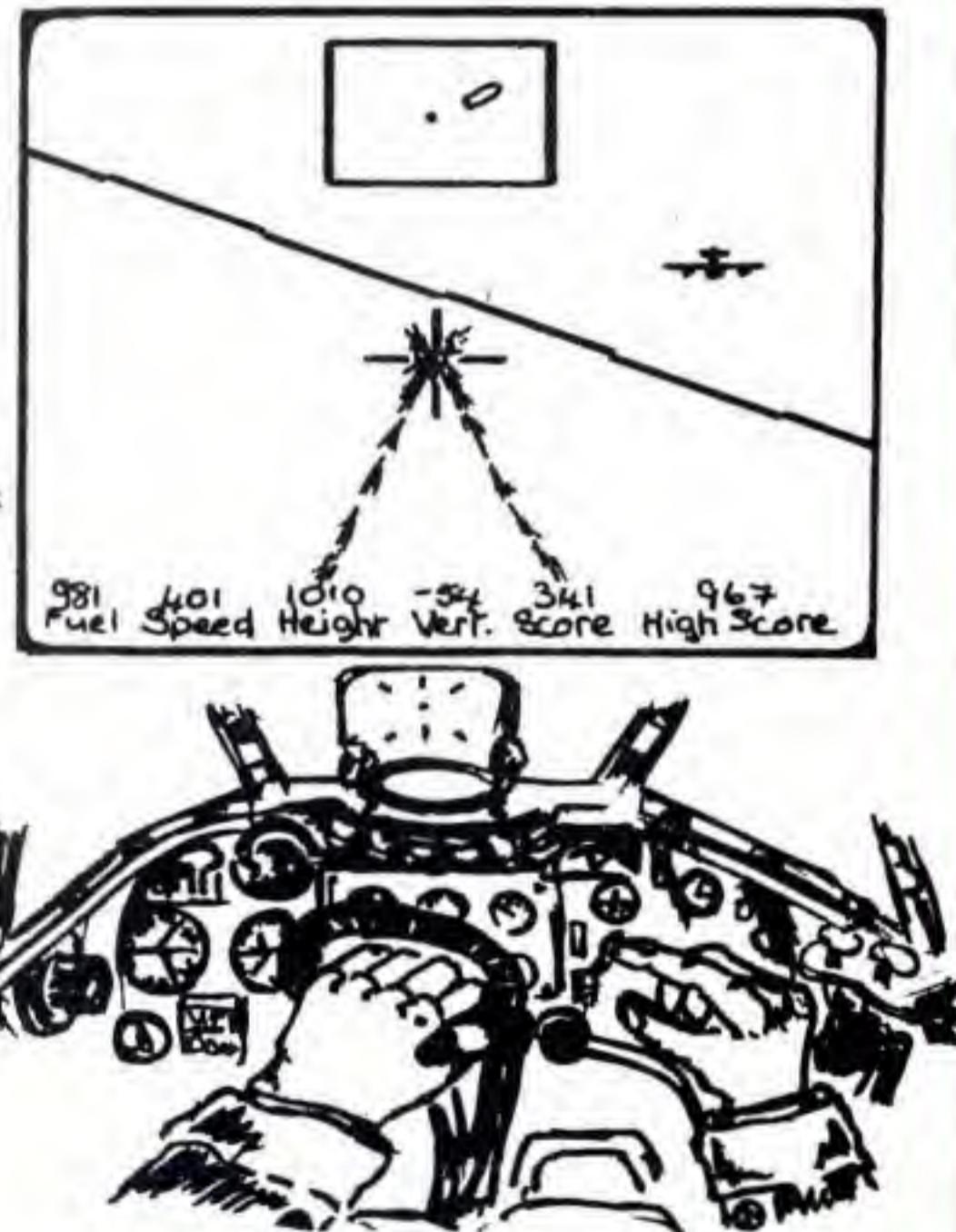
The graphics include a combined Turn and Bank indicator and Artificial Horizon, across the whole screen showing the actual state of your flying at all times. The Radar shows the enemy position in relationship to yourself. The enemy plane is lifelike as is the firing and explosions. Colour is used and of course sound.

Further information includes fuel, speed, altitude, rate of climb/ descent and score, with a complete score table as well.

As your fuel diminishes, you can actually land your fighter, lowering the undercarriage and getting an accurate view of the runway, with the operation needing good joystick control. You can then refuel, take-off and go into the attack again without any loss of your score.

£8.50 Vat and post paid

The screen below is what you actually see—a true 3D cockpit view with the artificial horizon moving as you make joystick movements, with the enemy moving into your sights to destruct



# Kansas

Recognised Brand Leader in microcomputer software

Kansas City Systems, Unit 3, Sutton Springs Wood, Chesterfield, S44 5XF. Tel. 0246 850357

# NUMBER GAME

THE FIRST THROW of the dice will determine what you need to throw in subsequent turns. If you throw a 7 or an 11 on your first attempt you win immediately and if you throw a 3 or a 12 you lose automatically. If you throw any other number, you must throw that number again before throwing a seven to win.

**Number Game** was written for the BBC B by Brian Taylor of Chilwell, Nottingham.

```

10 REM DICE
20 MODE7
30 VDU23,8202,0,0,0,
40 CLS
50 PRINT TAB(15,2);CHR$141;CH
R#130;"DICE"
60 PRINT TAB(15,3);CHR$141;CH
R#131;"DICE"
70 PRINT TAB(2,6);CHR$130;"The
first throw on the dice will"
CHR#130;"determine what you need
to throw the";CHR#130;"second t
ime. But if you throw a 3 or 12"
CHR#130;"on the first throw you
lose or if you";CHR#130;"throw a
7 or 11 you"
80 PRINT TAB(20,10);CHR$130;"win. After the first";CHR#130;"thr
ow if you didn't throw any of th
ose";CHR#130;"numbers you have t
o throw the number you";CHR#130;
"got first before you threw anot
her 7.";CHR#130;"Simple really"
90 PRINT TAB(6,20);CHR$131;"P
RESS ANY KEY TO CONTINUE"
100 G=GET
110 MODE2
120 VDU23,8202,0,0,0,
130 U=0
140 Z=0
150 D=0
160 GOSUB 740
170 MODE2;VDU23,8202,0,0,0;
180 CLS

```

```

190 A=350;B=150;C=511;D=306;F=
664;L=1023;P=358;R=153;M=305;N=5
11
200
210 GOSUB 600
220 A=A+665;B=B+665;C=C+665;D=
D+665
230 GOSUB 600
240 COLOUR 2
250 A%=RND(6)
260 B%=RND(6)
270 PRINT TAB(5,15);B%
280 IF A%>1 THEN Q=A%-1 ELSE Q
=A%+1
290 IF A%>4 THEN P=A%-3 ELSE P
=A%+2
300 PRINT TAB(4,21);Q
310 PRINT TAB(6,21);P
320 PRINT TAB(15,15);B%
330 IF B%>1 THEN Q=B%-1 ELSE
Q=B%+1
340 IF B%>4 THEN P=B%-3 ELSE
P=B%+2
350 PRINT TAB(14,21);Q
360 PRINT TAB(17,21);P
370 IF Z=0 THEN I%=A%+B%
380 IF A%+B%=7 AND Z=0 THEN 47
0
390 IF A%+B%=11 AND Z=0 THEN 4
70
400 IF A%+B%=12 AND Z=0 THEN 5
50
410 IF A%+B%=3 AND Z=0 THEN 55
0
420 PRINT TAB(5,3);"YOU NEED "
I%
430 IF A%+B%=0 THEN GOTO 470
440 IF Z=1 AND A%+B%=7 THEN GU
TU 550
450 IF Z=0 THEN U=A%+B%
460 Z=1;GOTO 530
470 FOR T=1 TO 25
480 SOUND1,-15,T*10,1
490 NEXT
500 PRINT TAB(7,28);"YOU WIN"
510 G=GET
520 GOTO 130
530 G=GET
540 GOTO 160
550 FOR T=1 TO 2000 :NEXT T
560 SOUND 1,-15,1,20
570 PRINT TAB(7,28);"YOU LOSE"
580 G=GET
590 GOTO130
600 MOVE A,L
610 SOUND1,-11,L,2
620 GCOL0,1
630 DRAW C,M
640 DRAW C,N
650 DRAWD,F
660 DRAWB,N
670 DRAWB,M
680 DRAWA,L
690 DRAWA,K
700 DRAWB,N
710 MOVE A,K
720 DRAWC,N
730 RETURN
740 MODE2;VDU23,8202,0,0,0,
750 RESTORE
760 VDU24,150,250,1130,770
770 GCOL0,129
780 CLG
790 D%=D%+1
800 VDU24,195,290,1080,735
810 GCOL0,130
820 CLG
830 PRINT TAB(7,3);"THROW";D%
840 VDU 23,240,56,56,56,0,0,56
56,56
850 READ V,P
860 SOUND3,-5,V+50,2
870 IF V=0 THEN 960
880 COLOUR 1;COLOUR 130
890 PRINT TAB(V,P);CHR$240
900 IF V=3 AND P=14 OR V=8 AND
P=4 THEN SOUND1,-15,200,1
910 IF V=8 AND P=13 THEN 950
920 Y=V U=P
930 FOR U=1 TO 300 NEXT
940 PRINT TAB(Y,U);"
950 GOTO 850
960 FOR W=1 TO 1000 NEXT
970 RETURN
980 DATA 16,14,15,14,14,14,13,
14,13,14,11,14,19,14,9,14,8,14,7
,14,6,14,5,14,4,14,3,14,4,13,5,1
2,6,11,7,10,8,9,3,10,8,11,8,12,8
,13,9,8

```



```

90INPUT "Multiplicand: "N$
100IF VALN$=0 GOTO 90
110INPUT "Multiplier: "D$
120IF VALD$=0 GOTO 110
130MAXL% = 39
140DIM ANS$(MAXL%), UNDER%(MAXL%)
150ANS$(0)=STRING$(MAXL%-LENNS$,"0")
160ANS$(1)=STRING$(MAXL%-LENDS$,"0")
170T% = INSTR(N$, ".") : IF T% = 1
EFT$(N$, T%-1)+MID$(N$, T%+1): T% = LENN$-T%+1
180B% = INSTR(D$, ".") : IF B% = 1
EFT$(D$, B%-1)+MID$(D$, B%+1): B% = LEND$-B%+1
190D% = B%+T%
200D% = MAXL%-D%
210PROC MULT
220PROCPRT
230END
240DEFPROC MULT
250LC% = 1
260POW% = LEND%
270FOR PD% = 1 TO LEND%
280LC% = LC%+1
290POW% = POW%*1
300IF MID$(D$, PD%, 1) = "."
GOTO 410
310TEMP$ = ""
320S% = 0
330FOR I% = LENN$ TO 1 STEP -1
340S% = S%+VAL(MID$(N$, I%, 1)) * V
AL(MID$(N$, I%, 1))
350TEMP$ = STR$(S% MOD 10) + TEMP$
360S% = S% DIV 10
370NEXT I%
380IF S% < TEMP$ = STR$(S% MOD 10)
+ TEMP$ * S% DIV 10: GOTO 380
390ANS$(LC%) = STRING$(MAXL%-LEN
TEMP$, "0") + TEMP$
400IF POW% < ANS$(LC%) = MID$(ANS$
(LC%), POW%+1) + STRING$(POW%, "0")
410NEXT PD%
420ANS$(LC%+1) = STRING$(MAXL%, "0")
430S% = 0
440FOR I% = MAXL% TO 1 STEP -1
450SP% = TRUE
460S% = S% DIV 10
470FOR UK% = 2 TO LC%

```

**L**ONG MULTIPLICATION takes the hard work out of lengthy arithmetic exercises when you need to show your working. The program asks for two numbers and then multiplies them, setting-out the answer neatly in the manner commonly taught in schools.

## Long Multiplication

```

480IF MID$(ANS$(J%), I%, 1) < " "
SP% = FALSE: S% = S% + VAL(MID$(ANS$(J
%), I%, 1))
490NEXT J%
500IF SP% IF S% = 0 S% = I%-1: I% = 1
GOTO 520
510ANS$(LC%+1) = LEFT$(ANS$(LC%+
1), I%-1) + STR$(S% MOD 10) + MID$(AN
S$(LC%+1), I%+1)
520NEXT I%
530IF T% = 0 IF B% = 0 GOTO 570
540FOR I% = 2 TO LC%+1
550IF MID$(ANS$(I%), D%, 1) < " "
ANS$(I%) = MID$(ANS$(I%), 2, D%-1) +
".0" + MID$(ANS$(I%), D%+1)
560NEXT I%
570ANS$(1) = LEFT$(ANS$(1), S%) + M
ID$(ANS$(1), S%+1): UNDER%(1) = S%+1
580ANS$(LC%) = LEFT$(ANS$(LC%), S
%) + MID$(ANS$(LC%), S%+1): UNDER%(
LC%) = S%+1
590ANS$(LC%+1) = LEFT$(ANS$(LC%+
1), S%) + MID$(ANS$(LC%+1), S%+1): UN
DER%(LC%+1) = S%+1
600ENDPROC
610DEFPROC PRT
620PRINT
630FOR L% = 0 TO MAXL%
640IF ANS$(L%) = "" MX = L%: L% = MAX
L%
650NEXT L%
660FOR N% = 0 TO MX-1: L% = N%
670REM Leave out the next line
if you normally start multiPli
ng from the left
680IF N% > 1 AND N% < MX-1 L% = MX-N
%
690PRINT ANS$(L%)
700IF UNDER%(N%) = 0 GOTO 730
710UNDER%(N%) = UNDER%(N%) + (D% <>
MAXL%)
720PRINT SP$(UNDER%(N%)) STRING
$(MAXL%-UNDER%(N%)), "-"
730NEXT N%
750ENDPROC

```



# Long Division

**T**HIS PROGRAM asks you for two numbers and then divides the first by the second. It prints both the answer and the working. If there is a remainder, it will be shown at the end of the working. If the program is given numbers after the decimal point, it will answer to the same number of decimal points.

**Long Division** was written for the BBC B or Electron by Derek Chown of Wimborne, Dorset.

```

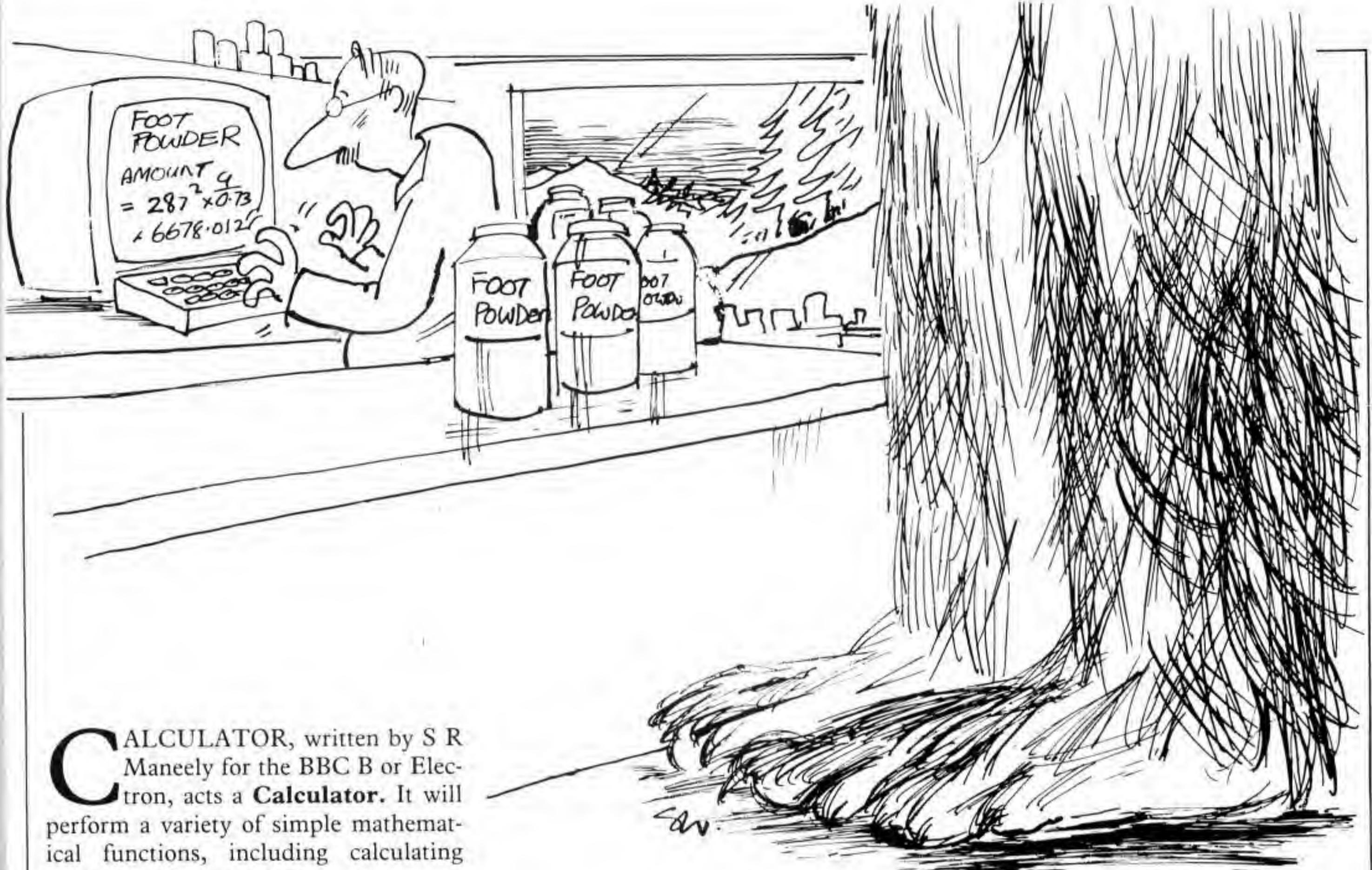
90INPUT "Dividend (or Numerator):" N$
100IF VALN$=0 GOTO 90
110INPUT "Divisor (or Denominator):" D$
120IF VALD$=0 GOTO 110
130IF RIGHT$(N$,1)=".," N$=N$+"0"
140IF VALD$=INT(VALD$) GOTO 190
150D$=STR$(10*VALD$)
160L%=INSTR(N$,".")
170IF L% N$=LEFT$(N$,L%-1)+MID$(N$,L%+1,1)+"."+MID$(N$,L%+2) ELSE N$=N$+"0"
180GOTO 130
190MAXL%=20
200DIM ANS$(MAXL%),UNDER%(MAXL%)
210LGD%=LENN$
220LGN%=LENN$
230SIG%#=FALSE
240DP%#=INSTR(N$,".")
250DPOS%#=DP%#+LGD%
260ANS$(0)=STRING$(LGD%+1," ")
UNDER%(0)=LGD%+1
270ANS$(1)=D$+"0"+N$
280PROCDIVIDE
290PROCPRT
300END
310DEFPROCDIVIDE
320POINT%#=0
330CALCX#=1
340TRY$=""
350REPERT
360REPERT
370POINT%#=POINT%#+1
380IF CALCX#>MAXL%-2 POINT%#=-1 GOTO 440
390IF POINT%#<LGN% ELSE 400 IF POINT%#<INT%#-LENSTR$(VALC$) ANS$(CALCX#)=DPOS%# DANDC$ VALANS$(CALCX#)>0 N$=N$+"0" ANS$(1)=ANS$(1)+"0" ELSE POINT%#=-1 GOTO 440
400IF POINT%#>DP%# ELSE IF SIG%

```

```

ANS$(0)=ANS$(0)+"." : POINT%#=POINT%#+1 ELSE SIGN#=TRUE : ANS$(0)=LEFT$(ANS$(0),LENANS$(0)-1)+"0." : POINT%#=POINT%#+1
410TRY$=TRY$+MID$(N$,POINT%#,1)
420IF CALCX#>2 ANS$(CALCX#)=ANS$(CALCX#)+MID$(N$,POINT%#,1)
430IF VALTRY$>VALD$# ELSEIF SIGN# ANS$(0)=ANS$(0)+"0" ELSE ANS$(0)=ANS$(0)+" "
440UNTIL VALTRY$>VALD$# OR POINT%#=-1
450SIGN#=TRUE
460IF POINT%#=-1 GOTO 550
470IF DP%# PNT%#=POINT%#+(POINT%#)-DP%# ELSE PNT%#=POINT%#
480ANS$(0)=ANS$(0)+STR$(VALTRY$#DIV(VALD$#))
490CALCX#=CALCX#+1
500TEMP$=STR$(VALTRY$#)-(VALTRY$#)MOD(VALD$#)
510ANS$(CALCX#)=STRING$(LGD%+1+PNT%-LENTEMP$," ")#TEMP$#UNDER%(CALCX#)=LGD%+1+PNT%-LENTEMP$#
520CALCX#=CALCX#+1
530TRY$=STR$(VALTRY$#)MOD(VALD$#)
540ANS$(CALCX#)=STRING$(LGD%+1+PNT%-LENTRY$#," ")#TRY$#
550UNTIL POINT%#=-1
560ENDPROC
570DEFPROCPRINT
580PRINT
590FOR L%#=0 TO MAXL%
600IF ANS$(L%)="" L%#=MAXL%: GOTO 0 710
610IF DP%# ELSE GOTO 690
620IF L%#<2 GOTO 690
630I%#=0
640IF LENANS$(L%)>0 I%#=UNDER%(L%#)-(UNDER%(L%)>0)
650IF I%# ELSE GOTO 680
660IF I%#>DPOS%# UNDER%(L%)=UNDER%(L%#)+1: ANS$(L%)=" "+ANS$(L%) ELSE IF LENANS$(L%)>DPOS%# ANS$(L%)=LEFT$(ANS$(L%),DPOS%#)+". "+MID$(ANS$(L%),DPOS%#+1)
670GOTO 690
680IF LENANS$(L%)<DPOS%# ELSE I%#=MID$(ANS$(L%),DPOS%#,1)+" "+ANS$(L%)=LEFT$(ANS$(L%),DPOS%#)+". "+MID$(ANS$(L%),DPOS%#+1)
690PRINT ANS$(L%)
700IF UNDER%(L%) PRINT STRING$(UNDER%(L%#),"-")#STRING$(LENANS$(L%#)-UNDER%(L%#),"-")
710NEXT L%
720ENDPROC

```



**C**ALCULATOR, written by S R Maneely for the BBC B or Electron, acts a **Calculator**. It will perform a variety of simple mathematical functions, including calculating averages and square roots.

# CALCULATOR

```

10 MODE 6
20 COLOUR 5
30 REM (c) Copyright of G.R.
Maneely
40 PRINT:PRINT:PRINT:PRINT
50 PRINT TAB(10)"PRESS S TO S
TART"
60 INPUT Z
70 IF Z$="S" THEN GOTO 80 ELSE
GOTO 20
80 MODE 2
90 FOR X=1 TO 17
100 FOR U = 1 TO 10
110 LET W=U*U*U
120 NEXT U
130 COLOUR X
140 PRINT TAB(4)"CALCULATOR"
150 NEXT X
160 PRINT:PRINT
170 MODE 6
180 PRINT:PRINT:PRINT:PRINT
190 PRINT TAB(5)" THIS PROGRAM
TAKES THE FORM OF A POCKET CAL-
CULATOR.
200 PRINT TAB(5)" TYPE IN THE N
UMBER OF THE FUNCTION YOU REQUIR
E. "
210 PRINT:PRINT:PRINT
220 PRINT TAB(10)"PRESS B TO B
EGIN"
230 INPUT A#
240 IF A#="B" THEN GOTO 250 ELS
E GOTO 190
250 CLS
260 *TV 255
270 PRINT:PRINT:PRINT:PRINT:PR
INT
280 PRINT TAB(5)"WHICH NUMBER
DO YOU WISH?"

```

```

290 PRINT:PRINT:PRINT
300 PRINT TAB(5)"1 ADD
2 SUBTRACT"
310 PRINT TAB(5)"3 MULTIPLY
4 DIVIDE "
320 PRINT TAB(5)"5 SQUARE
6 SQUARE ROOT "
330 PRINT TAB(5)"7 AVERAGES
8 END PROGRAM"
340 INPUT B
350 *TV 255
360 IF B=1 THEN GOTO 440
370 IF B=2 THEN GOTO 490
380 IF B=3 THEN GOTO 520
390 IF B=4 THEN GOTO 560
400 IF B=5 THEN GOTO 600
410 IF B=6 THEN GOTO 640
420 IF B=7 THEN GOTO 680
430 IF B=8 THEN GOTO 760
440 INPUT "ENTER TWO NUMBERS TO
BE ADDED ",L,D
450 LET E=C+D
460 PRINT C;" PLUS ";D;" IS ";E
470 GOTO 740
480 INPUT "ENTER TWO NUMBERS TO
BE SUBTRACTED ",F,G
490 LET H=F-G
500 PRINT F;" MINUS ";G;" IS ";
H
510 GOTO 740
520 INPUT "ENTER TWO NUMBERS TO
BE MULTIPLIED ",I,J
530 LET K=I*K
540 PRINT I;" MULTIPLIED BY ";J
;" IS ";K
550 GOTO 740
560 INPUT "ENTER TWO NUMBERS TO
BE DIVIDED ",L,M
570 LET N=L/M

```

```

580 PRINT L;" DIVIDED BY ";M;" IS ";
590 GOTO 740
600 INPUT "ENTER NUMBER TO BE S
QUARED ",O
610 LET P=O*O
620 PRINT O;" SQUARED IS ";P
630 GOTO 740
640 INPUT "ENTER NUMBER OF WHIC
H THE SQUARE ROOT MUST BE FOUND
",Q
650 LET R=SQR(Q)
660 PRINT "THE SQUARE ROOT OF ";
Q;" IS ";R
670 GOTO 740
680 S=0:T=0
690 INPUT " ENTER NUMBERS, LAST
ONE MUST BE 999 ",U
700 IF U=999 THEN GOTO 730
710 LET S=S+U:LET T=T+1
720 GOTO 690
730 PRINT " THE AVERAGE IS ";S/
T
740 INPUT " DO YOU WISH TO DO A
NUTHER CALCULATION Y/N ",V#
750 IF V#=Y" THEN GOTO 250 ELS
E GOTO 760
760 END

```



# SOFTWARE WITH STYLE—FOR THE ELECTRON & BBC 'B'



## KEN-1 DARTS, POKER DICE AND PENTOMINOES.

Each game outstanding on its own—together an unrivalled offer for only £9.95. Particularly good graphics!



## KEN-2 LUDO, MATCH-UP, TABLES AND TANGRAMS

A compilation for the young (6–12) computer whizz-kid. Play, learn and excercise the mind! Four programmes for £9.95.

**STATASOFT 234 HIGH STREET, SUTTON, SURREY**

01-661 2266

CHEQUE/P.O.

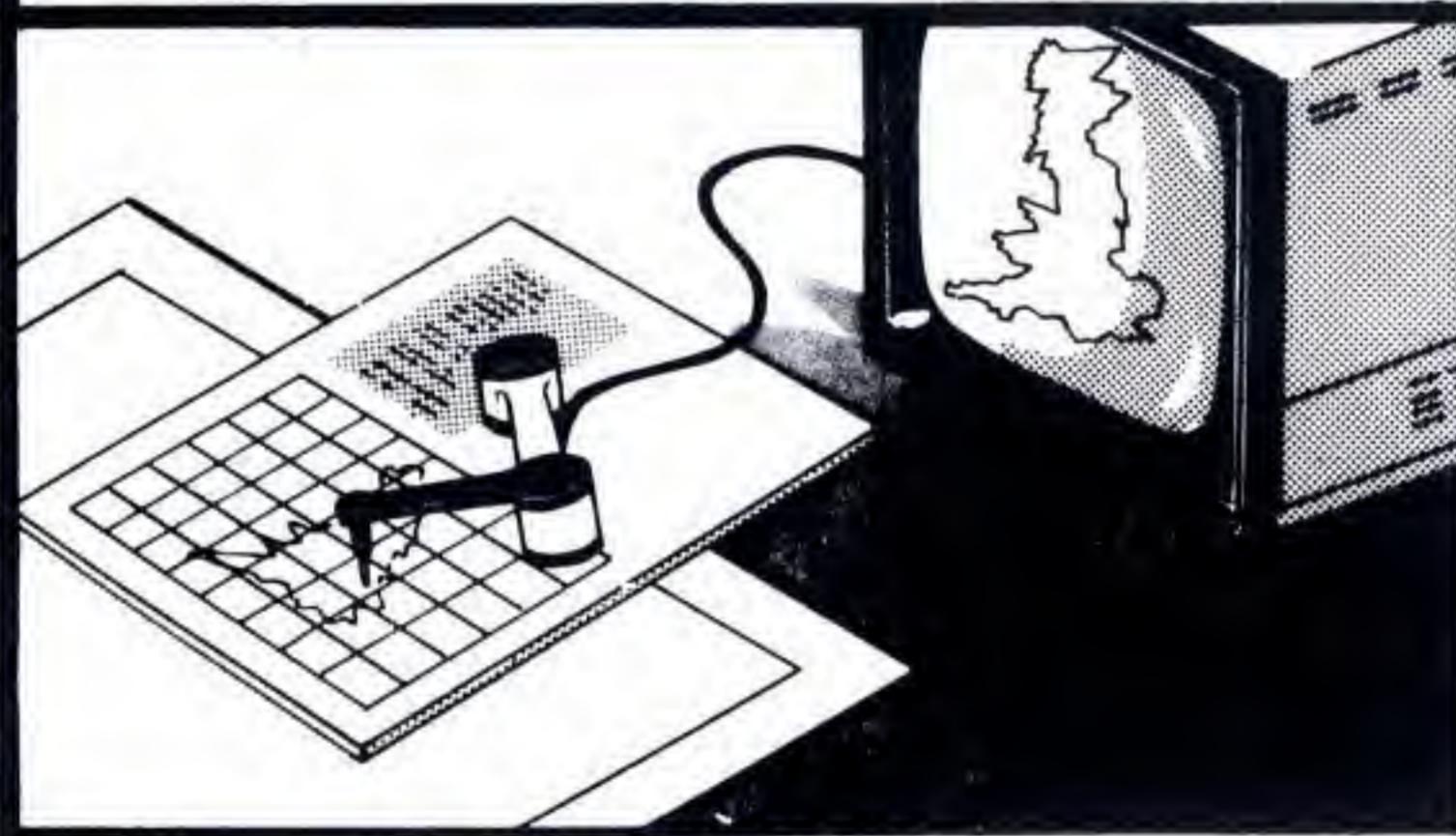


*Postage & packing free. Mail or Telephone orders welcomed.*

# Robot

# PloïïeR

**£59.50**  
INC. VAT  
CARRIAGE  
£3.00



### COMMANDS FOR:

LINES  
CIRCLES  
RECTANGLES  
INFILLING  
COPY AND MOVE  
PRINT AT  
AS WELL AS TRACE MODE

- ★ FOR BBC MICRO MODEL B CASSETTE OR DISC
- ★ ENABLES PICTURES TO BE DRAWN OR TRACED
- ★ WORKS IN ANY GRAPHICS MODE — COLOUR SELECTABLE
- ★ DESIGNED BY A TEACHER FOR EDUCATIONAL USES BY STAFF AND PUPILS
- ★ TRANSPARENT TABLET ALLOWS DIAGRAMS AND MAPS, ETC. TO BE COPIED
- ★ ROUTINE INCLUDED TO SAVE QUICKLY TO DISC OR CASSETTE
- ★ SCREEN DUMPS FOR EPSON AND SEIKOSHA PRINTERS
- ★ TRIED AND TESTED — DIRECT FROM THE MANUFACTURER

Please send me .....

I enclose Cheque/P.O. for .....

or please debit my Access/Barclaycard .....

Name .....

Address ..... Code .....

GOVERNMENT AND EDUCATIONAL ESTABLISHMENT  
OFFICIAL ORDERS WELCOME

# Robot

**COMPUTER  
DEVELOPMENTS LIMITED**

**NATIONAL INDUSTRIAL ESTATE  
BONTOFT AVENUE, HULL HU5 4HF  
TEL: (0482) 448562.**

```

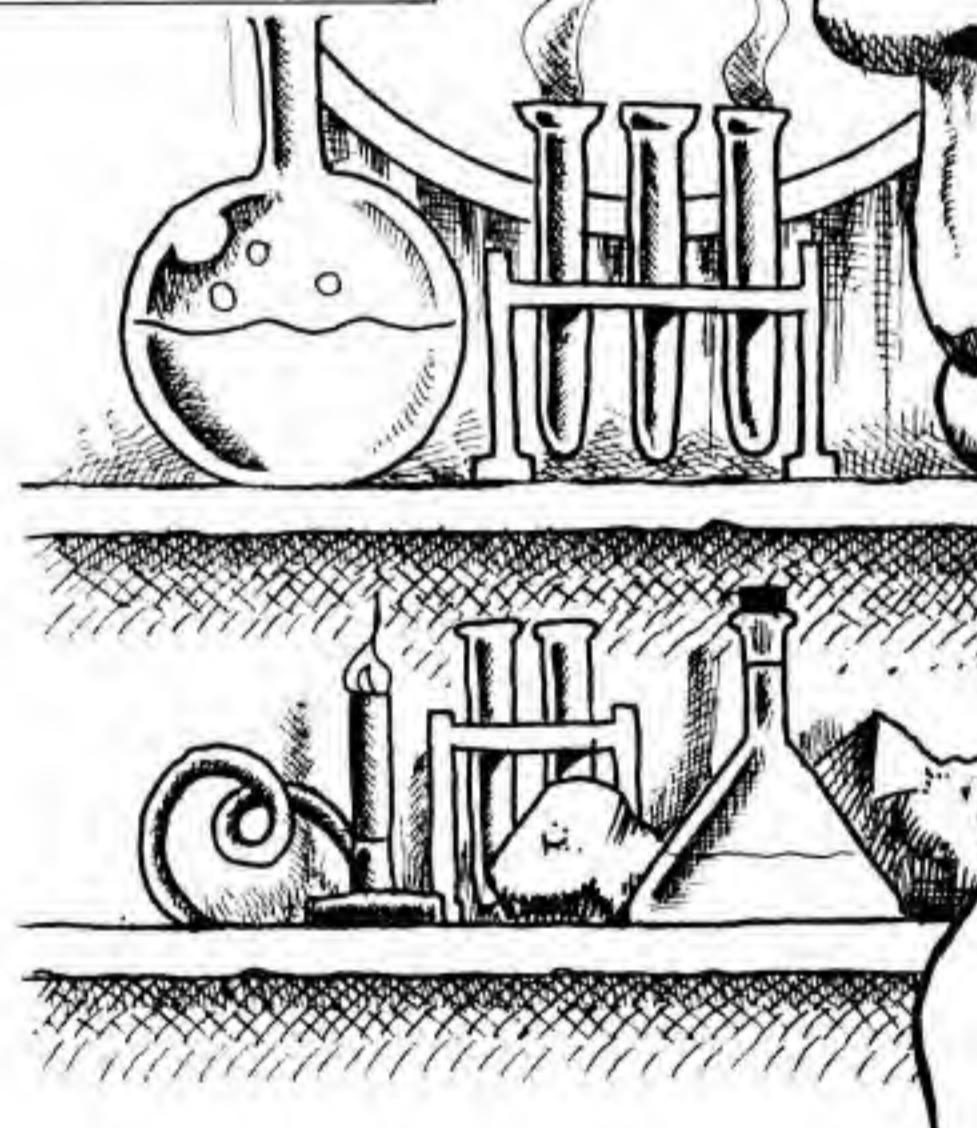
5 A=0·B=0·C=0·D=0·E=0·F=0
10 MODE 7
11 VDU 23;8202;0,0,0;
12 PROGtitle
13 MODE 1
15 RESTORE 500
16 IF A+B+C+D+E+F>6 THEN GOTO
0 20
17 FOR T=0 TO 2000:NEXT
18 MODE 7:PROGcongratulations
19 RUN
20 INPUT"Enter a Piece of APP
aratus"
22 INPUT APP#
23 PRINTTAB(0,0);"
"
35 FOR N=1000 TO 1500 STEP 10
0
40 READ D#
50 IF APP#=D# THEN SOUND 1,-1
5,150,2:GOTO N
60 NEXT N
63 SOUND 0,-15,50,2
65 GOTO 15
500 DATA BUNSEN,BURNER,CORK,FL
ASK,CONDENSER,TRIPOD,BEAKER
600 END
1000 REM bunsen burner
1010 MOVE 200,350
1020 DRAW 200,230
1030 DRAW 140,220
1035 DRAW 140,200
1040 DRAW 200,200
1050 MOVE 220,350
1060 DRAW 220,260
1062 DRAW 240,260
1064 MOVE 240,245
1065 DRAW 220,245
1066 DRAW 220,230
1070 DRAW 200,220
1080 DRAW 200,200
1085 R=1
1090 GOTO 15
1100 REM cork
1110 FOR X=565 TO 580
1120 MOVE 195,X
1130 DRAW 225,X
1140 NEXT
1145 B=1
1150 GOTO 15
1200 REM flask
1210 MOVE 195,500
1220 DRAW 195,500
1230 DRAW 130,410
1240 MOVE 225,500
1250 DRAW 225,500
1252 DRAW 250,543
1254 MOVE 250,520
1256 DRAW 225,500
1258 DRAW 225,500
1260 DRAW 290,410
1270 DRAW 130,410
1280 C=1
1295 GOTO 15
1300 REM condenser
1310 MOVE 250,543
1320 DRAW 280,550
1340 DRAW 650,400
1350 DRAW 675,375
1355 DRAW 730,350
1360 MOVE 250,520
1365 DRAW 260,495
1370 DRAW 625,345
1375 DRAW 655,357
1380 DRAW 725,327
1390 D=1
1395 GOTO 15

```

# Water Distillation

**T**HIS PROGRAM allows the user to display the apparatus needed to distill water. Typing in the name of an object needed will result in its being displayed on-screen in correct relation to other apparatus already chosen for the experiment.

**Water Distillation** was written for the BBC B by Alex Segre of north London.



```

1260 DRAW 290,410
1270 DRAW 130,410
1280 C=1
1295 GOTO 15
1300 REM condenser
1310 MOVE 250,543
1320 DRAW 280,550
1340 DRAW 650,400
1350 DRAW 675,375
1355 DRAW 730,350
1360 MOVE 250,520
1365 DRAW 260,495
1370 DRAW 625,345
1375 DRAW 655,357
1380 DRAW 725,327
1390 D=1
1395 GOTO 15

```



```
1400 REM tri Pod
1410 MOVE 100,200
1420 DRW 140,380
1430 DRW 280,380
1440 DRW 320,280
1450 DRW 340,280
1455 DRW 380,380
1460 DRW 320,380
1465 DRW 320,400
1470 DRW 100,400
1475 DRW 100,380
1480 DRW 120,380
1485 DRW 80,200
1490 DRW 100,200
1493 E=1
1495 GOTO 15
1500 REM beaker
```

```
1510 MOVE 300,320
1520 DRW 300,200
1530 DRW 700,200
1540 DRW 700,320
1545 E=1
1550 GOTO 15
2000 DEF PROCtitle
2010 PRINT TAB(8,5);CHR$(141);CHR$(134);"WATER DISTILLATION":PRINT TAB(8,6);CHR$(141);CHR$(134);"WATER DISTILLATION"
2020 PRINT TAB(3,10);CHR$(131);"In this Program you must type in a"
2030 PRINT TAB(8,11);CHR$(131);"Piece of apparatus used in the"
2040 PRINT TAB(8,12);CHR$(131);"distillation of water. If you get one"
2050 PRINT TAB(8,13);CHR$(131);"right then a short beep will occur"
2060 PRINT TAB(8,14);CHR$(131);"and the apparatus will be displayed."
2080 PRINT TAB(3,26);CHR$(129);CHR$(136);"HIT THE SPACE-BAR TO START"
2090 G=GET
2100 IF G=32 THEN ENDPROC ELSE GOTO 2090
3000 DEF PROCcongratulations
3010 RESTORE 3240
3020 VDU 23;8202;0;0;0
3030 PRINT TAB(7,5);CHR$(141);CHR$(130);CHR$(136);"CONGRATULATIONS":PRINT TAB(7,6);CHR$(141);CHR$(136);CHR$(136);"CONGRATULATIONS"
3040 PRINT TAB(3,9);"YOU HAVE SUCCEEDED IN OBTAINING"
3050 PRINT TAB(10,10);"PURE WATER!!"
3060 FOR X=1 TO 11
3070 READ P,D
3080 IF P=999 THEN L=0 ELSE L=L+1
3090 SOUND 1,L,P,D
3100 SOUND 1,0,0,3
3110 NEXT
3200 PRINT TAB(8,20);CHR$(129);CHR$(136);"HIT THE SPACE-BAR FOR ANOTHER GO"
3210 G=GET
3220 IF G>32 THEN GOTO 3210
3230 ENDPROC
3240 DATA 97,15,97,5,101,5,999,5,101,5,97,5,101,10,97,2,89,5,81,5,77,10
```

Second  
Edition Just  
published

THE GOOD  
COMPUTING  
BOOK FOR  
BEGINNERS

PLUS a complete practical glossary of terms



All you need to know about computers  
just nothing you don't  
by Dennis Jarrett



If you only buy ONE  
computing book

# THIS IS THE CLASSIC!

An entertaining, but **thorough** reference source with the most readable, comprehensive glossary you'll find anywhere. The Good Computing Book for Beginners is an essential A-Z of all the facts you need to know about computing — and none you don't!

Whether you're brand new to computing, or an old hand keen to stay ahead, you'll score by keeping this classic, top-selling book within reach to use again and again.

The author, Dennis Jarrett, is a successful journalist who was also founder editor of Which Computer? magazine — so his first edition quickly became a standard work. Now this new, substantially enlarged and revised edition covers the latest trends, terms and technology with the relevant facts — and **ONLY** the relevant facts — in **plain English**.

Here's another fact you'll find fascinating: it will only cost you £2.95!

Use the coupon below to get your copy right away — or buy it soon from your bookshop. It's the **one** book you'll turn to again and again.

Please send me \_\_\_\_\_ copy(ies) of The Good Computing Book for Beginners by Dennis Jarrett at £2.95  
each plus 50p post and packing. I enclose a cheque for \_\_\_\_\_  
account Visa/Access/Diners/Amex number \_\_\_\_\_  
Signature \_\_\_\_\_ Name \_\_\_\_\_ Address \_\_\_\_\_  
(please print clearly)  
Send to: ECC PUBLICATIONS LIMITED  
196-200 Balls Pond Road  
London N1 4AQ

# Pontoon

PLAY a traditional game of **Pontoon** on your BBC B against friends or the computer. The object is to hold cards totalling 21 or the nearest possible lowest figure. A total exceeding 21 will lose automatically or "bust". Take as many cards as is necessary or safe and the computer will make its selection.

```

1  CLS
10 PRINT "HOW MANY PLAYERS?"
20 INPUT B
21 LET A=0
30 DIM C(B)
40 LET D=RND(11)
50 LET A=A+D
60 IF A>21 THEN GOTO 80
70 GOTO 40
80 LET A=A-D
90 FOR E=1 TO B
95 CLS

```

```

100 PRINT "YOUR TURN PLAYER";E
105 PRINT
110 IF C(E-1)>21 THEN PRINT "PLAYER";E-1;" HAS GONE BUST"
115 LET F=RND(10)
120 IF F=1 THEN GOSUB 260
125 LET C(E)=C(E)+F
130 PRINT
135 PRINTTAB(8) "===="
140 PRINT
145 PRINT C(E)
150 PRINTTAB(8) "===="
155 PRINT
160 IF C(E)>21 THEN GOTO 185
165 PRINT "ANOTHER CARD? (Y OR N)"
170 INPUT G#
175 CLS
180 IF G#= "Y" THEN GOTO 115
185 NEXT E
190 CLS
200 FOR E=1 TO B
201 IF C(E)>21 THEN PRINT "PLAYER";E;" BUST"
205 IF C(E)<22 THEN PRINT "PLAYER";E;" SCORED ";C(E)
210 PRINT
215 NEXT E
220 PRINT "THE COMPUTER HAS ";A
225 PRINT
230 PRINT "ANOTHER GAME? Y/N"
235 INPUT H#
240 CLS
245 IF H#= "Y" THEN RUN
250 END
260 PRINT "ACE=1 OR 11?"
265 INPUT Z
270 LET F=Z
275 RETURN

```



# Bank Robber

**B**REAK into your local bank and steal as much money as possible. Vicious guard dogs and brutal guards will reduce your strength and shoot at you, but bags of money can be found in the vaults. The aim is to leave alive with as much money as possible. For the BBC B and Electron.

```

10 CLS
20 LET P=RND(14)
30 LET V=0
40 LET A=RND(20)
50 LET B=RND(15)
55 PRINTTAB(6)"BANK RUBBER"

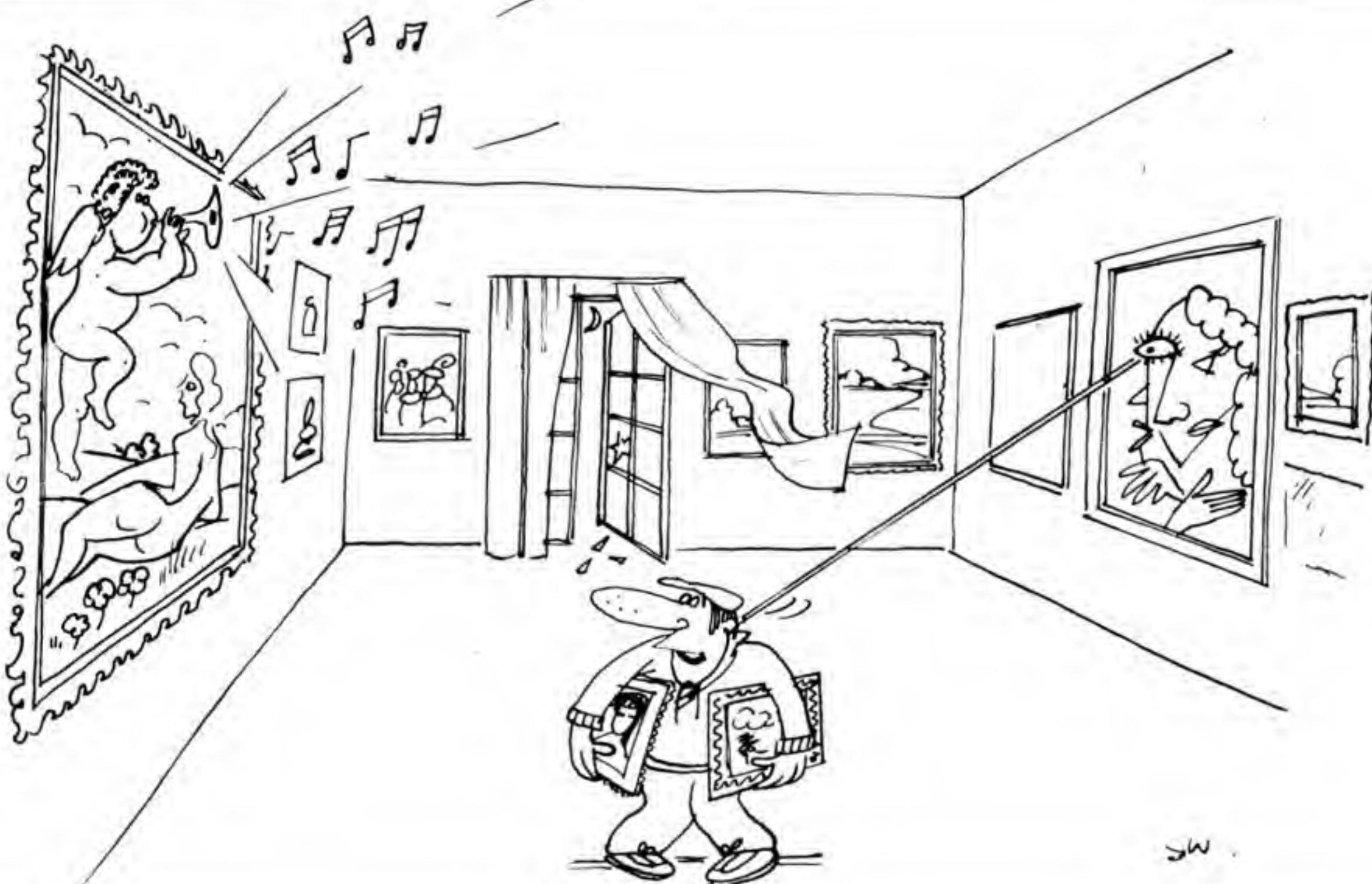
60 PRINT "POWER=";P;" STRENGTH OF BULLET PROOF VEST";A;" BODDY HITS";B;" LOOT=";V
70 PRINTTAB(6)"BANK RUBBER"
80 PRINT "THE BANK IS VERY DARK."
90 PRINT "YOU CAN HARDLY SEE"
100 PRINT "WILL YOU ENTER THE SAFE?"
110 INPUT A#
120 IF A#="N" THEN GOTO 70
140 LET P=RND(3)

```

```

145 LET X=RND(60)
150 IF P=0 THEN GOTO 150
160 IF P=1 THEN GOTO 220
170 IF P=2 THEN GOTO 240
180 LET E=RND(12)
190 IF P>E THEN PRINT"YOU KILLED TWO VICIOUS GUARD DOGS"
200 IF P<E THEN LET P=P-4:PRINT "BITTEN BY GUARD DOGS. LOSE 4 POINTS"
210 GOTO 300
220 PRINT"NO GUARDS HERE..YOU RE POWER INCREASES":LET P=P+1
225 LET P=P+1
230 GOTO 290
240 PRINT"SHOT AT BY GUARDS. LOSE 7 HITS"
250 IF A=0 THEN LET B=B-7
260 IF A>0 THEN LET A=A-7
270 IF A<0 THEN LET A=0
280 GOTO 300
290 PRINT"YOU FIND A BAG OF BANKNOTES":LET V=V+100
300 IF B<0 THEN PRINT "YOU ARE DEAD":END
310 PRINT"WILL YOU GO FURTHER?"
320 INPUT S$
330 CLS
335 PRINT "POWER=";P;" STRENGTH OF BULLET PROOF VEST";A;" BODDY HITS";B;" LOOT=";V
338 IF X=32 THEN GOTO 360
340 IF S$="Y" THEN GOTO 140
350 PRINT "YOU ARE AT THE ENTRANCE"
360 END

```



# Typing Practice

TEST your touch typing with **Typing Practice** for the BBC or Electron. Letters will be displayed briefly on-screen. Type the same letter before it disappears to gain a point. After 20 letters have been displayed, your score will be given.

```
5 CLS
10 PRINT "PRESS THE LETTER SHOWN TO SCORE A POINT."
15 FOR V=1 TO 10000
16 NEXT V
20 LET S=0
30 REM LOOP WHICH RUNS THE ROUTINE 20 TIMES
40 FOR A=1 TO 20
50 LET M=RND(26)
60 LET M=M+64
70 LET M$=CHR$(M)
80 PRINT M$
90 LET N$=INKEY$(160)
100 IF N$=M$ THEN LET S=S+1
110 CLS
120 NEXT A
130 PRINT "YOU HAVE NOW HAD 20
140 PRINT "TURNS. YOUR SCORE
150 PRINT "IS NOW ";S
160 FOR V=1 TO 10000
170 NEXT V
180 RUN
```

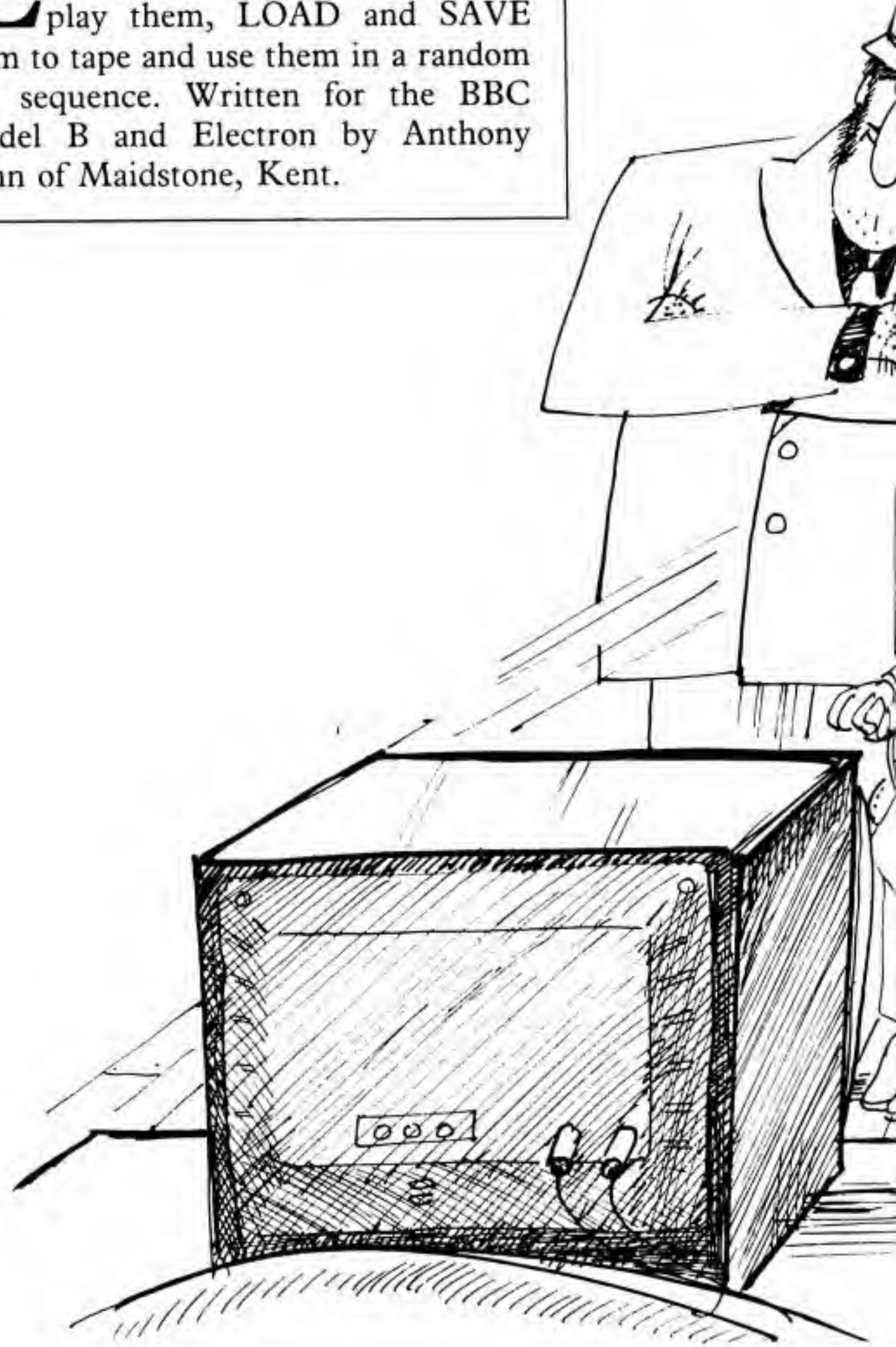


```

10 ON ERROR CLS:GOTO 60
20 REM ***QUESTION MASTER***
30 REM *****1982*****1982*****
40 REM ***BY ANTHONY CAHN***
50 CLS
60 PRINT TAB(10);STRING$(15,"*")
70 PRINT TAB(10);"QUESTION MA
STER"
80 PRINT TAB(10);STRING$(15,"*")
90 PRINT"Select an option:-"
100 PRINT'TAB(5)"1. Display qu
estions"
110 PRINT'TAB(5)"2. Random tes
t"
120 PRINT'TAB(5)"3. Enter test
questions"
130 PRINT'TAB(5)"4. Change a t
est question"
140 PRINT'TAB(5)"5. Load data
from a cassette"
150 PRINT'TAB(5)"6. Save data
onto a cassette"
155 PRINT'TAB(5)"7. Catalogue"
160 A$=GET$:IF VAL(A$)<1 OR VA
L(A$)>7 THEN 160
170 CLS
180 ON VAL(A$) GOTO 190,300,44
0,580,630,780,892
190 PRINT TAB(9);STRING$(9,"*")
200 PRINT TAB(10);"DISPLAY"
210 PRINT TAB(9);STRING$(9,"*")
220 VDU 14
230 FOR A=1 TO X
240 PRINT'TAB(5);A;"");TAB(8);
Q$(A)
250 PRINTTAB(8);A$(A)
260 NEXT A
270 VDU 15
280 PROCEND
290 GOTO 60
300 PRINT TAB(9);STRING$(6,"*")
310 PRINT TAB(10);"TEST"
320 PRINT TAB(9);STRING$(6,"*")
330 FOR A=1 TO X:A$(A)=0:NEXT
340 SC=0
350 FOR B=1 TO X
360 A=INT(RND(X)):IF A$(A)=1 TH
EN 360 ELSE A$(A)=1
370 PRINT Q$(A)
380 INPUT A$:
390 IF A$=A$(A) THEN PRINT"Cor
rect, well done.";SC=SC+1 ELSE PR
INT"Bad luck, it was ";A$(A)

```

**E**XAMINER allows its user to enter questions and answers, display them, LOAD and SAVE them to tape and use them in a random test sequence. Written for the BBC Model B and Electron by Anthony Cahn of Maidstone, Kent.



```

400 NEXT
410 PRINT"You scored ";SC;" ou
t of ";X
420 PROCEND
430 GOTO 60
440 PRINT'TAB(9)STRING$(17,"*")
450 PRINTTAB(10)"ENTER QUESTIO
NS"
460 PRINTTAB(9)STRING$(17,"*")
470 CLEAR
480 INPUT" How many questions"
,X
490 DIM Q$(X),A$(X),R(X)
500 PRINT" Right then, input que
stions and answers alternately"
510 PRINT" Pressing return inbe
tween"
520 FOR A=1 TO X
530 PRINTTAB(1);A;"");TAB(5);
INPUT Q$(A)
540 PRINTTAB(5);INPUTA$(A)
550 NEXT

```



```
560 PROCEND
570 GOTO 60
580 INPUT "Which question to be
changed",A
590 PRINT "Right then, input new
question and then answer, return
separating."
600 INPUT Q$(A),A$(A)
610 PROCEND
620 GOTO 60
630 CLEAR
640 INPUT "What is the name of
your file",F$
650 PRINT "Play tape and press
any key"
660 Q=GET
670 PRINT "Please wait"
680 EX=OPENIN F$
690 INPUT #EX,X
700 DIM Q$(X),A$(X)
710 FOR A=1 TO X
720 INPUT #EX,Q$(A),A$(A)
730 NEXT
```

```
740 CLOSE#EX
750 DIMAX(X)
760 PROCEND
770 GOTO 60
780 PRINT"what is the name of
your file?"
790 INPUT F#
800 PRINT"Please Press ";
810 EX=OPENOUT F#
820 PRINT' "Please wait"
830 PRINT#EX,X
840 FOR H=1 TO X
850 PRINT#EX,0$(H),A$(H)
860 NEXT
870 CLOSE#EX
880 PROCEND
890 GOTO 60
892 *CAT
900 DEF PROCEND
910 PRINT' TAB(7)"PRESS THE SPA
CE BAR"
920 F$=GET$:IF F$="" THEN CLS
:ENDPROC ELSE 920
```

# IN ORDER

THE COMPUTER will display a square comprising 16 smaller squares. Fifteen of them contain a letter while the other contains a space. The aim is to arrange all the letters in

alphabetical order by moving letters adjacent to the space repeatedly into the space.

**In Order** was written for the BBC B by Neil Devlin of Dundee, Tayside.

```

1REM           IN-ORDER
2REM           BY NEIL DEVLIN
3REM           6TH DECEMBER 1983
4REM
5IF ZX=0 THEN HX=100000
6DIM BC(16),DC(16):REM LET
7MODE 7
8PROCINTRO
9DIM BC(16):DIM DC(16):REM LET
TERS
10VDU 23,8202,0,0,0:REM CURS
OR OFF
11:
12REM           MAIN PART OF PROGRAM
M
13:
14PROCSCREEN:REM POSITIONS ON
SCREEN
15PROC MIX:REM MIX UP LETTERS
16REPEAT
17REPEAT:G=GET:UNTIL G>64 AND
G<80
18PROCINPUT:REM PICK LETTER TO
MOVE
19IF MARKER=0 THEN PROCFALSE:
GOTO17
20PROCCHANGE:REM CHANGE LETTE
RS
21SCORE=SCORE+1
22PROCScore
23PROCHECK:REM CHECK IF END
OF GAME
24UNTIL FALSE
25:
26:
27REM   PRINT LETTERS ON SCREE
N
28PRINTCHR$(134):" ":"RETURN
29PRINTCHR$(129):"A":RETURN
30PRINTCHR$(129):"B":RETURN
31PRINTCHR$(129):"C":RETURN
32PRINTCHR$(129):"D":RETURN
33PRINTCHR$(129):"E":RETURN
34PRINTCHR$(131):"F":RETURN
35PRINTCHR$(131):"G":RETURN
36PRINTCHR$(131):"H":RETURN
37PRINTCHR$(130):"I":RETURN
38PRINTCHR$(130):"J":RETURN
39PRINTCHR$(130):"K":RETURN
40PRINTCHR$(130):"L":RETURN
41PRINTCHR$(132):"M":RETURN
42PRINTCHR$(132):"N":RETURN
43PRINTCHR$(132):"O":RETURN
44:
45:
46DEF PROC MIX
47PRINTTAB(1,4):CHR$(136):CHR
$(129):"           IN-ORDER
"
48SCORE=0:FOR Z=1 TO 16
49Y=RND(16):IF BC(Y)=6 THEN GO
TO49
50CC(Z)=BC(Y):BC(Y)=0:NEXT
51FOR Z=1 TO 16:IF CC(Z)=64 THEN
BC(Z)=1 ELSE NEXT
52FOR Z=1 TO 16:PRINTTAB(CC(Z),1)
,CC(Z,2)):GOSUB CC(Z)-36:NEXT
53PRINTTAB(6,3):"SCORE":TAB(8
,5):"0"
54PRINTTAB(20,3):"BEST SCORE"
:IF HX>10 THEN PRINTTAB(31,5):HX
:ELSE PRINTTAB(30,6):HX
55ENDPROC
56:
57:
58DEF PROCSCREEN
59PRINTTAB(1,4):CHR$(136):"TH
IS IS HOW IT SHOULD BE FINISHED"
:X=12

```

```

60FORZ=1 TO 4 : RC(2,1)=X : X=X+4 : RC
2,2)=16 : NEXT : X=12
61FORZ=5 TO 8 : RC(2,1)=X : X=X+4 : RC
2,2)=13 : NEXT : X=12
62FORZ=9 TO 12 : RC(2,1)=X : X=X+4 : RC
2,2)=16 : NEXT : X=12
63FORZ=13 TO 16 : RC(2,1)=X : X=X+4 : RC
2,2)=19 : NEXT
64X=65 : FORY=1 TO 15 : BC(Y)=X : X=X+
1 : NEXT
65BC(16)=64
66FORZ=1 TO 15 : PRINTTAB((RC(2,1))
), (RC(2,2))), : GOSUB(C(2)-36) : NEXT
67PRINTTAB(4,22), CHR$(136), CH
R$(129), "PRESS SPACE BAR TO STAR
T" : REPEAT : UNTIL GET=32 : PRINTTAB(
6,22) : "
68ENDPROC
69:
70:
71DEF PROC1INPUT
72REM MAKE SURE INPUT IS VALI
D
73MARKER=0 : Z=0
74REPEAT : Z=Z+1
75REM DOWN
76IF Z>12 THEN GOTO78
77IF C(2)=C AND BC(2+4)=1 THEN
MARKER=1 : W=2 : V=1 : Z=16 : GOTO 87
78REM RIGHT
79IF Z=4 OR Z=8 OR Z=12 OR Z=

```

```

16 THEN GOTO81
80IF C(2)=C AND BC(2+1)=1 THEN
MARKER=1 : W=2 : V=2 : Z=16 : GOTO 87
81REM LEFT
82IF Z=1 OR Z=5 OR Z=9 OR Z=1
3 THEN GOTO 84
83IF C(2)=C AND BC(2-1)=1 THEN
MARKER=1 : W=2 : V=3 : Z=16 : GOTO 87
84REM UP
85IF Z<5 THEN GOTO87
86IF C(2)=C AND BC(2-4)=1 THEN
MARKER=1 : W=2 : V=4 : Z=16
87UNTIL Z=16
88ENDPROC
89:
90:
91DEF PROCCHANGE
92REM CHANGE LETTERS AROUND
93REM AND PRINT THEM ON SCREE
N
94IF V=4 THEN C(W-4)=C(W) : C(W
)=64 : BC(W-4)=0 : BC(W)=1 : PRINTTAB(RC
(W-4),1),RC(W-4),2)) : GOSUB(C(W-
4)-36) : PRINTTAB(RC(W),1),RC(W),
2)) : GOSUB(C(W)-36)
95IF V=3 THEN C(W-1)=C(W) : C(W
)=64 : BC(W-1)=0 : BC(W)=1 : PRINTTAB(RC
(W-1),1),RC(W-1),2)) : GOSUB(C(W-
1)-36) : PRINTTAB(RC(W),1),RC(W),
2)) : GOSUB(C(W)-36)
96IF V=2 THEN C(W+1)=C(W) : C(W
)=64 : BC(W+1)=0 : BC(W)=1 : PRINTTAB(RC
(W+1),1),RC(W+1),2)) : GOSUB(C(W-
1)-36)

```

# TONY'S FUN EMPORIUM

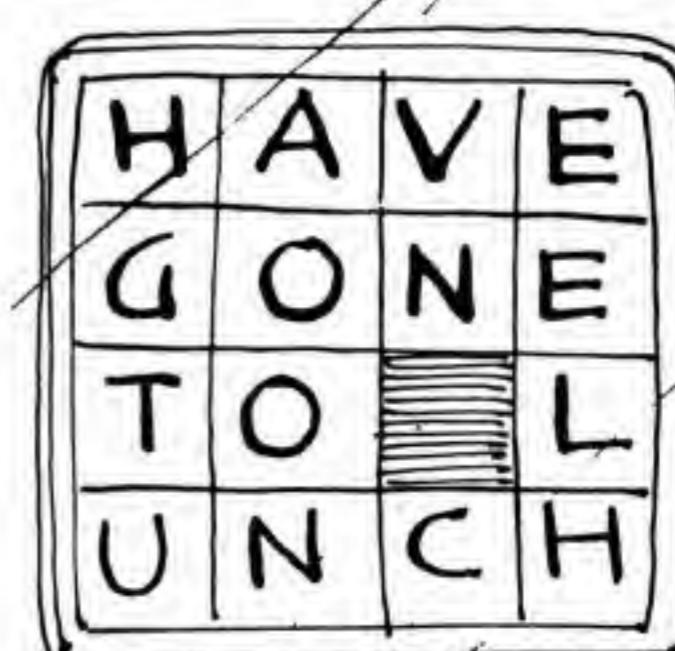


```

101=64: B(W+1)=0: B(W)=1: PRINTTAB(AC(W+1), 1), A((W+1), 2)): GOSUB(CC(W+1)-36): PRINTTAB(AC(W), 1), A((W), 2)): GOSUB(CC(W)-36)
102 IF V=1 THEN C(W+4)=C(W): C(W+4)=64: B(W+4)=0: B(W)=1: PRINTTAB(AC(W+4), 1), A((W+4), 2)): GOSUB(CC(W+4)-36): PRINTTAB(AC(W), 1), A((W), 2)): GOSUB(CC(W)-36)
103 ENDPROC
104:
105 DEF PROCFALSE
106 REM WRONG INPUT
107 SOUND 1, -15, 100, 10
108 PRINTTAB(3, 23): "THAT WAS AN
109 INVALID GUESS, TRY AGAIN"
110 FOR21=1 TO 5000: NEXT
111 FOR2=37 TO 3 STEP-1
112 PRINTTAB(2, 23): "": NEXT
113 SOUND 1, -15, 100, 3
114 ENDPROC
115:
116 DEF PROCScore
117 REM PRINT SCORE
118 IF SCORE<10 PRINTTAB(8, 5): SCORE
119 ENDPROC
120:
121 IF C(R%)=K THEN K=K+1
122 NEXT
123 IF K>80 THEN ENDPROC
124 ENVELOPE 1, 1, -26, -36, -45, 25
5, 255, 255, 127, 0, 0, -127, 126, 0
125 SOUND 1, 1, 255, 155
126 C=INKEY(800): J%=1
127 IF SCORE=H% THEN SCORE=1: GO TO129
128 IF SCORE<H% THEN H%=SCORE: SCORE=0
129 CLS
130 VDU 23, 8202, 0, 0, 0: REM CURS
131 OFF
132 PRINTTAB(14, 10): CHR$(129): "WELL DONE!"
133 IF SCORE=0 THEN PRINT":", CHR$(130), TAB(3): "YOU MANAGED TO G
ET THE BEST SCORE": GOTO134
134 IF SCORE=1 THEN PRINT":", CHR$(130), TAB(7): "YOU EQUAL THE BE
ST SCORE": ELSE PRINT":", CHR$(130), TAB(18): "BUT": "", CHR$(130): "YOU
WERE": SCORE-H%: " POINTS OFF THE
BEST SCORE"
135 PRINT":", TAB(4): CHR$(131): "DO YOU WANT ANOTHER GAME(Y/N)"
```

```

135 REPEAT: G=GET: UNTIL G=89 OR
G=78
136 IF G=89 THEN CLS: GOTO10
137 CLS: PRINTTAB(14, 12): CHR$(131): "BYE!": TAB(14, 13): CHR$(131): "BYE!"
138 GOTO140
141:
142:
143 DEF PROCINTRO
144 REM INTRODUCTION & INSTRU
145 CLS
146 VDU 23, 8202, 0, 0, 0: REM CURS
147 OFF
148 PRINTTAB(14, 10): CHR$(131): "IN-ORDER"
149 PRINTTAB(18, 12): "BY"
150 PRINTTAB(13, 14): CHR$(129): "NEIL DEVLIN"
151 FOR2=1 TO 5000: NEXT
152 CLS
153 PRINT":", CHR$(129), CHR$(157), CHR$(135): "IN-ORDER"
154 PRINT":", CHR$(134): "RE-ARRAN
155 GE THE LETTERS IN ALPHABETICAL"
156 PRINTCHR$(134): "ORDER, BY PR
ESSING THE LETTER YOU WANT"
157 PRINTCHR$(134): "TO MOVE INT
O THE SPACE. THE LOWEST SCORE"
158 PRINTCHR$(11): CHR$(134): "IS
KEPT ON THE SCREEN. LESS THAN 10
000"
159 PRINTCHR$(134): "IS YOU'RE T
ARGET, TO BEGIN WITH."
160 PRINT":", CHR$(132): TAB(12): "Y
OU CAN ONLY MOVE"
161 PRINT":", CHR$(136): CHR$(129)
":": "PRESS SPACE BAR TO CONTI
NUE"
162 REPEAT: UNTIL GET=32: CLS
163 ENDPROC
```



# GOLF



PLAY a simple game of **Golf** on your BBC B or Electron. You will be told how many yards you have to play and par for the hole. You can then select a club or a putter to hole

out as quickly as possible. There are nine holes to play and, when you finish, you will be told whether your game was above or below par.

```

10 LET X=0
20 A=1
30 F=0
40 H=0
50 B=0
60 CLS
70 LET D=RND(245)+175
80 LET P=6
90 P=4
100 IF D<276 THEN LET P=3
110 IF D>350 THEN LET P=5
120 PRINT

```

```

130 PRINT "HOLE,";A;" ";D;" YARD(S) TO PLAY"
140 PRINT
150 PRINT "PAR ";P
160 PRINT
170 IF D<>0 THEN PRINT B;" STROKES PLAYED"
180 IF H<>1 THEN PRINT "CLUB? 5 TO 9"
190 IF H=1 THEN PRINT "PUTTER? 1 TO 4"
200 INPUT W

```

```

210 CLS
220 T=1
230 IF W=2 THEN LET T=W
240 IF W=3 THEN LET T=RND(2)+4
250 IF W=4 THEN LET T=RND(4)+8
260 IF W=5 THEN LET T=RND(6)+2
0
270 IF W=6 THEN LET T=RND(9)+4
5
280 IF W=7 THEN LET T=RND(8)+9
6
290 IF W=8 THEN LET T=RND(9)+1
35
300 IF W=9 THEN LET T=RND(15)+195
310 D=D-T
320 PRINT "STROKE,";T;" YARD(S)
"
330 LET B=B+1
340 IF D>-1 THEN GOTO 370
350 LET D=-D
360 PRINT D;" PAST HOLE"
370 IF D=0 THEN GOTO 410
380 IF D<18 AND D>-19 THEN PRINT "ON GREEN"
390 IF D<18 AND D>-19 THEN LET H=1
400 GOTO 90
410 IF B>P THEN PRINT "BOGGIE ";B-P;" OVER"
420 IF B=P THEN PRINT "PAR ";B
430 IF P-1=B THEN PRINT "BIRDIE ";B
440 IF P-2=B THEN PRINT "EAGLE ";B
450 LET X=X+B
460 LET F=F+P
470 LET A=A+1
480 IF A=10 THEN GOTO 500
490 GOTO 40
500 PRINT "C/PAR ";F
510 PRINT "YOUR SCORE";X

```

# ERRORS & MISHAPES

PART of a line was omitted from **Colour Logic** in the December/January issue. Line 790 should end with NEXT I, as printed. Line 800 should begin:

800 IF RIGHT > CORRECT AND RIGHT and should continue <> 0 THEN as printed.

Line 730 of **INVASION** in the same issue should end THEN GOTO 50.



# Simon's Game

ON THE SCREEN are displayed four coloured sections, each with its own sound and a corresponding cursor key. The computer will flash one of those sections and play the appropriate note. The player must then press the corresponding cursor key. The computer will then play two notes and the two corresponding keys must be pressed in sequence. The number of notes played will increase by one each turn until an error is made by the player, when the score will be displayed.

**Simon's Game** was written for the BBC B by N Mirza of Edgware, Middlesex.

```

0 ON ERROR GOTO 700
10 REM ****
20 REM **      SIMON
30 REM **      **
40 REM **      **
50 REM **      (C)
60 REM **      **
70 REM **      N. A. MIRZA
80 REM **      **
90 REM ****
100 MODE 2
110 *FX4,1
120 ENVELOPE1,1,18,20,-30,30,3
0,30,0,0,-1,126,50
130 ENVELOPE2,2,0,0,0,10,10,10
,0,-1,-3,-5,126,70
140 VDU 23,224,&3C18,&FF7E,&18
18,&1818;
150 VDU 23,225,&1818,&1818,&7E
FF,&183C
160 VDU 23,226,&3010,&FF70,&70
FF,&1038;
170 VDU 23,227,&0C08,&FF0E,&0E
FF,&080C;
180 VDU 23,8202,0,0,0
190 PROCinst
200 PROCDISPLAY
210 P$=""
220 W=INKEY(60)
230 REPEAT
240 P$=P$+CHR$(RND(4)+135)
250 PRINTTAB(1,2)" MY " TAB(14
,2)"TURN"
260 FOR I=1 TO LEN(P$)
270 PROCPLAY(MID$(P$,I,1))
280 NEXT

```

```

290 PRINTTAB(1,2)"YOUR"
300 FOR I=1 TO LEN(P$)
310 G$=GET$: IF ASC(G$)<136 OR
ASC(G$)>139 GOTO 310
320 PROCPLAY(G$)
330 IF G$<> MID$(P$,I,1) GOTO
340 ELSE GOTO 430
340 *FX 15,0
350 IF G$=MID$(P$,I,1) THEN GO
TO430
360 SOUND 1,1,100,10
370 W=INKEY(10):CLS
380 COLOUR 5
390 PRINT TAB(4,4)"You scored
",LEN(P$)-1
400 COLOUR 15
410 PRINTTAB(5,9)"Any key to"
TAB(5,12)"Play again"
420 X=GET:RUN
430 NEXT
440 PRINT TAB(9,16),LEN(P$),:F
OR J=1 TO 1000:NEXT
450 UNTIL LEN(P$)=254
460 *FX 15,0
470 PRINT TAB(5,4)"O.K you win
",:PRINT TAB(5,7)"Any key to Pla
y again":X=GET:RUN
480 DEFPROCDISPLAY
490 CLS
500 GCOL 0,1:MOVE 0,512:PLOT 6
9,640,1024:PLOT 85,640,512
510 GCOL 0,2:MOVE 1280,512:PLO
T 69,640,1024:PLOT 85,640,512
520 GCOL 0,3:MOVE 1280,512:PLO
T 69,640,0:PLOT 85,640,512
530 GCOL 0,4:MOVE 0,512:PLOT 6
9,640,0:PLOT 85,640,512
540 GCOL 0,0:MOVE 480,512:PLOT
69,800,512:PLOT 85,640,640
550 MOVE 480,512:PLOT 69,800,5
12:PLOT 85,640,384
560 PRINT TAB(6,10)CHR$226,TAB
(12,10)CHR$227,TAB(6,19)CHR$224
TAB(12,19)CHR$225
570 ENDPROC
580 DEFPROCPLAY(B$)
590 B=ASC(B$)-135:VDU 19,B,7,0
600 SOUND 1,2,B*52+4,5
610 FOR J=1 TO 800:NEXT
620 VDU 19,B,B,0
630 ENDPROC
640 DEF PROCinst
650 CLS:COLOUR 3:PRINT TAB(7,3
)"SIMON"
660 COLOUR 2:PRINT"""/"Use the
cursor keys"""/"to follow the tun
es"""/"Played by simon the"""/
computer"
670 COLOUR 6:PRINT"""/" TO ST
ART PRESS"""/" ANY KEY"
680 COLOUR?
690 G=GET:ENDPROC
700 MODE 7
710 *FX 4,0
720 END

```



## CHESHIRE

### FAIRHURST INSTRUMENTS

Complete range of BBC equipment including Econets, Printers, Plotters, Colour Monitors, Graphic Tablets, Upgrades, Disc Drives, Disc Controller chips, Torch Computers, Z80 Discpack. Extensive range of Software.

Free expert advice.

**Dean Court, Woodford, Wilmslow, Cheshire** Tel: 0625 533741

## HERTFORDSHIRE

### STEVENAGE

Computers for home and business.

- Disc Drive/Upgrades • Printers • Monitors
- Business Packages • Games
- Service Contracts •

### Q-TEK SYSTEMS

119 High St.  
Old Town Stevenage.  
Tel: 0438 60011



## SOUTH LONDON

### CROYDON COMPUTER CENTRE

**ACORN SERVICE CENTRE**  
Everything for Electron Atom and BBC Micro; Software, Printers, Drives, Paper & Spares, etc.

**29a Brigstock Rd,  
Thornton Heath CR4 7JJ  
01-689 1280**

## DEVON

### COMPUTERLAND (A & D COMPUTERS)

BBC Micros, Disc Drives, Printers, Cumana Drives, Microvitec Monitors. Software by Acorn, Gemini, Program Power, Bugbyte Software for all etc.

**6 City Arcade, Fore Street, Exeter.**

TEL: 77117

## HUMBERSIDE

Everything for the BBC Microcomputer — Your local dealer

**MICROSERVE (HUMBERSIDE) LTD**  
39 Oswald Road, Scunthorpe,  
South Humberside DM15 7PN  
Tel: 0724 849696

SPECIALISTS IN MICROCOMPUTER NETWORKS

## SUFFOLK

### Suffolk Computer Centre

BBC Microcomputer Service & Information Centre  
Microcomputers • Disc Drives • Monitors  
Matrix & Daisywheel Printers • Joysticks  
Cassettes • Light Pens • Graphics Tablet  
Books & Software

**3 Garland St., Bury St Edmunds.  
Telephone: 0284 - 705503  
Open Mon - Sat 9 - 5.30.**

## ESSEX

### ESTUARY HOME COMPUTER CENTRE

Estuary Software Products now have BBC's in stock together with a wide range of software and accessories.

**261 Victoria Ave., Southend-on-Sea.**

Credit Card Holders may phone  
their orders (0702) 43568

## LEICESTERSHIRE

### D. A. COMPUTERS LTD.

Official BBC dealer and service centre. Everything you require for the BBC computer inc. Epson Printers, Selection of Disc Drives, P.L. Digitiser, Colour and Monochrome Monitors. Full range of games software and books

**104 LONDON ROAD, LEICESTER.  
TEL: (0533) 549407**

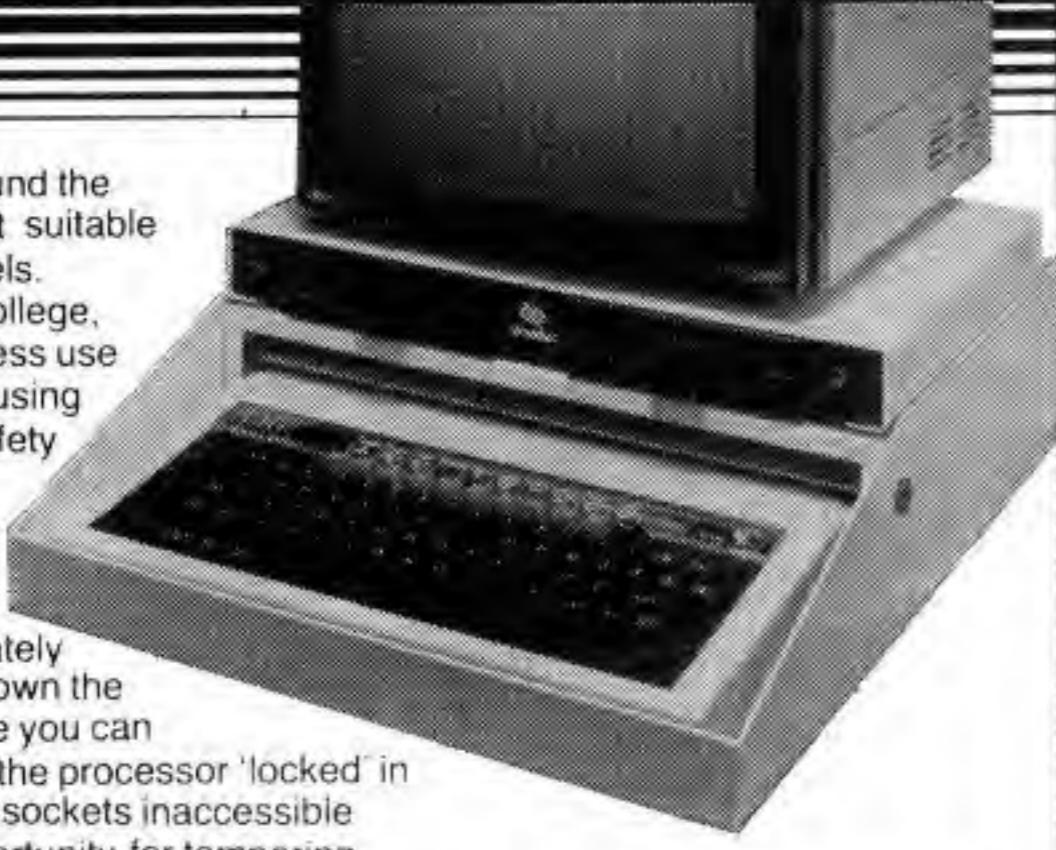
## SURREY

### THE COMPUTER SHOP

**J. S. Simnett Computers Ltd.**, official BBC dealer and service centre. Everything for the BBC and Torch Computers plus peripherals

**91 Acre Road, Kingston-on-Thames,  
Surrey Tel: 01-549 0173  
ACCESS/BARCLAYCARD WELCOME**

**SAFETY & SECURITY** WITH THE **NEW**  
**TIDYBASE**  
**MICROCOMPUTER HOUSING**



Designed around the BBC model B but suitable for various models. For School, College, home and business use this compact housing offers special safety and security features. Made up of individual modules—available separately—if you already own the original Tidybase you can upgrade it. With the processor 'locked' in place; plugs and sockets inaccessible there is little opportunity for tampering or pilfering.

- Optional and unique security bar locks equipment in place.
- 3 or 4 way socket accommodates monitor, processor, drive, printer etc. One external lead only for mains input—no multi-plugging, no adaptors.
- Strong metal construction with safety edges, stoved finished Brown or Cream.

- All individual modules interlock to provide complete housing.
- Alternative housings for various disk drives available.
- Optional trolley for ease of movement or unlock and carry the system.



**remedian**

For full details  
**REMEDIAN INSTRUMENTS LIMITED**  
3 Over Links Drive, Poole, Dorset BH14 9QU  
Tel: Canford Cliffs (0202) 708404

## COMPUTER CABINETS

A range of Cabinets and Housing Units especially designed for your home computer system. Keep it dust free, tidy and secure.

*Write or 'phone  
for Colour  
Brochure:*

**MARCOL  
CABINETS**  
PO BOX 69,  
SOUTHAMPTON  
Tel: 0703-731168

## ORDER COUPON

**3 ISSUES OF  
ADVERTISING  
FOR ONLY £30  
3 FOR 2 OFFER**

PLEASE PLACE A BOX  
IN YOUR DEALER  
ACORN PROGRAMS

NAME .....

ADDRESS .....

CHEQUE/PO ENCLOSED FOR £30.

BBC 32K  
All operating system

# 747 FLIGHT SIMULATOR

"THE BEST SIMULATION AROUND,  
A MUST FOR ALL BUDDING PILOTS", PCN

from DOCTOR SOFT,  
258 Coneygree Rd., Peterborough



Pilot written,  
instruments and  
3D visual runway view  
(Heathrow, Gatwick), Banks  
and pitches with realistic motion. Now with full  
Instrument Landing System (ILS). Briefing program, charts, notes and flight plan. Fantastic!  
ONLY £8.95 inc. VAT & P&P. Joystick control option in 4 program package.

DISC VERSION NOW AVAILABLE £11.95

\* Available from  
W.H. SMITH  
JOHN MENZIES AND ALL LEADING DEALERS  
\* Direct mail order  
\* Micromet 800 (Prestel)

DEALERS CONTACT (0903) 206076

GENEROUS ROYALTIES PAID FOR GOOD MATERIAL

## 3 DOUBLE ACTS FOR CHRISTMAS

- Spook, Spook (MUNCHER: 20 mazes, 3 skills, Hall of Fame/GHOST MINE: dig for gold, watch for ghosts & snake) £6.95
- Space, Space (WOLFPACK III: amazing colour graphics, 3 ships, 4 galaxies, aliens galore! /MISSION ALPHA: 3D & music) £6.95
- Spy, Spy (KREMLIN: escape from 3D maze in Kremlin /BONDSKI: lethal action on ski slopes!) £6.95

**EDUCATIONAL ACTION**  Spook, Spook (MUNCHER: 20 mazes, 3 skills, Hall of Fame/GHOST MINE: dig for gold, watch for ghosts & snake) £6.95

**EDUCATIONAL**  COLOUR-SHAPE MATCH (2-4 yr old) £5.95 cass.  747 SIMULATOR £8.95  DISC VERSION £11.95

WORD PERFECT (Friendly & versatile full facility 40/80 column word processor) £8.95 + £2.95 Disc version

TALKING TABLES TEACHER (Speaks when speech ROM fitted, teaches multiplication with games & questions) £6.95 (cassette)

FAMILY DISC PACKAGE: Tables Teacher, Colour Shape Match, Harmony, Home Office & Word Perfect £15.95

ROYALTIES DOC PAYS THE BEST FOR THE BEST!!

**DOCTOR SOFT**  
ADVANCED SOFTWARE



All prices include VAT & P&P. Cheque or PO to  
"Doctor Soft", 258 Coneygree Road, Peterborough PE2 8LR

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_

Animate your Basic programs with Arcade-speed Sprites

## SIMONSOFT SPRITES VERSION 2

@ £12.95 each BBC Model B

A devastating new sprites package! FASTEST EVER screen movement seen in Basic programs brought to your own character designs. All routines called from Basic, no knowledge of machine code is required.

### Look at these features:

- 1 Pixel-by-pixel movement, resulting in a fluid-smooth motion of sprites. Yet even when moving one pixel at a time, a sprite may cross the screen 40 times in 13.5 seconds.
- 2 Up to 48 SPRITES on screen at any one time.
- 3 All 16 logical colours available in sprite design.
- 4 12 different base sprites each with up to 3 clones. Each sprite has independent screen images and movement control.
- 5 Two images for every sprite to allow ultra-smooth motion (left, righthand pixels). Can be defined separately for animation e.g. jumping frogs, running men, etc.
- 6 COLLISION DETECTOR with hit flags set to the numbers of the sprites overlapping.
- 7 SUPERSPRITES of up to 24x24 pixels. Can be moved as a single sprite, uses just two coordinate integers.
- 8 Incredible ENLARGEMENT FACILITY allowing up to x5 magnification of any sprites. Let your invaders loom out of the screen in 3-D effects!
- 9 User-defined PRESET FLIGHT PATHS each with 8 directions of 255 steps.
- 10 Both EOR plotting and TRANSFER plotting available. EOR plotting allows sprites to cross background without disrupting it, transfer plotting cuts through background. Transfer plotting + background storage available for no disruption and no colour change as sprites cross background.
- 11 'Old' sprites deleted automatically, screen boundaries crossed automatically.
- 12 TWENTY different sprite routines: optimise on speed and memory space by choosing the routine best suited to your program.
- 13 Routine deposited in RAM, write Basic as normal, then SAVE/LOAD your program and sprites as a whole.
- 14 Two arcade-speed demonstration games (inc. DEVIL SWARM) using sprites.
- 15 Excellent manual accompanies package.
- 16 May be used in programs you wish to market.
- 17 Compatible with DISC/CASSETTE based system, please specify. Add £3 for disc version already on disc, specify 40/80 track.

PLEASE compare with other sprite packages  
DON'T OPT FOR ANYTHING LESS

Please order from

SIMONSOFT, 25 TATHAM ROAD, ABINGDON, OXON OX14 1QB  
TEL: (0235) 24140

Dealers enquiries welcome

You are cordially invited to be among the  
first members of the public to visit the

## London Book Fair

Barbican Exhibition Halls  
Golden Lane – London EC2  
10–12 April 1984  
3pm to 6.30pm daily

\* 25 000 books on all subjects \* displays by 400+ publishers from UK and overseas \* educational software \* author signing sessions \* meet-the-author events \* poetry readings



**£1 off normal admission**

For admission at the special price of £1 please bring this completed ad on 10, 11 or 12 April to

RECEPTION DESK HALL B, BARBICAN EXHIBITION HALLS

You will then be issued with a pass and information kit. Admission without this ad will be £2. We regret that under 16s are not admitted. Please complete in block letters.

Mr/Mrs/Ms \_\_\_\_\_

Address \_\_\_\_\_

Occupation \_\_\_\_\_

Source of this ad \_\_\_\_\_

Age  under 25  25–45  45+

# LORDS OF TIME

Joins our range of acclaimed pure-text puzzle adventures, at £9.90, for:

BBC 32K COMMODORE 64 SPECTRUM 48K LYNX 48K NASCOM 32K ORIC 48K ATARI 32K

## ADVENTURE REVIEWS

"Adventures which have a fast response time, are spectacular in the amount of detail and number of locations, and are available to cassette owners... Simply smashing!"

— *Soft, Sept 83*

"Colossal Adventure is included in Practical Computing's top ten games choice for 1983: "Poetic, moving and tough as hell."

— *PC, Dec 83*

"Colossal Adventure... For once here's a program that lives up to its name... a masterful feat. Thoroughly recommended!"

— *Computer Choice, Dec 83*

"Colossal Adventure is one of the best in its class. I would recommend it to any adventurer."

— *Acorn User, Feb 84*

"Adventure Quest... This has always been one of the best adventures for me as it seems to contain the lot. In all it took me about eight months to solve."

— *PCW, 18th Jan 84*

"To sum up, Adventure Quest is a wonderful program, fast, exciting and challenging. If you like adventures then this one is for you" — *NILUG issue 1.3*

"Colossal Adventure is simply superb... For those who want to move onto another adventure of similar high quality, Dungeon Adventure is recommended. With more than 200 locations, 700 messages and 100 objects it will tease and delight!"

— *Educational Computing, Nov 83*



## ADVENTURE REVIEWS

"Colossal Adventure... undoubtedly the best Adventure game around. Level 9 Computing have worked wonders to cram all this into 32K... Finally Dungeon Adventure, last but by no means least. This is the best of the lot – a truly massive adventure – you'll have to play it yourselves to believe it."

— *CBM 64 Users Club Newsletter*

"The puzzles are logical and the program is enthralling. Snowball is well worth the money which, for a computer program, is a high recommendation."

— *Micro Adventurer, Dec 83*

"Snowball... As in all Level 9's adventures, the real pleasure comes not from scoring points but in exploring the world in which the game is set and learning about its denizens... this program goes to prove that the mental pictures conjured up by a good textual adventure can be far more vivid than the graphics available on home computers."

— *Which Micro?, Feb 84*

"Lords of Time. This program, written by newcomer Sue Gazzard, joins my favourite series and is an extremely good addition to Level 9's consistently good catalogue... As we have come to expect from Level 9, the program is executed with wonderful style – none of those boring "You can't do that" messages! Highly recommended."

— *PCW, 1st Feb 84*

## MIDDLE EARTH ADVENTURES

### 1: COLOSSAL ADVENTURE

A complete, full size version of the classic mainframe game "Adventure" with 70 bonus locations added

### 2: ADVENTURE QUEST

Centuries have passed since the time of Colossal Adventure and evil armies have invaded The Land. The way is long and dangerous, but with cunning you can overcome all obstacles on the way to the Black Tower, source of their demonic power, and destroy it.

### 3: DUNGEON ADVENTURE

The trilogy is completed by this superb adventure, set in the Dungeons beneath the shattered Black Tower. A sense of humour is essential!

## THE FIRST SILICON DREAM ADVENTURE

### 1: SNOWBALL

The first of Pete Austin's second trilogy. The giant colony starship, Snowball 9, has been sabotaged and is heading for the sun in this massive game with 7000 locations.

## THE LORDS OF TIME SAGA

### 7: LORDS OF TIME

Our congratulations to Sue Gazzard for her super design for this new time travel adventure through the ages of world history. Chill to the Ice-age, go roamin' with Caesar's legions, shed light on the Dark Ages, etc.

**Price: £9.90 each (inclusive)**

Level 9 adventures are available from good computer shops, or mail-order from us at no extra charge. Please send order, or SAE for catalogue, to:

## LEVEL 9 COMPUTING

Dept AP, 229 Hughenden Road,  
High Wycombe, Bucks HP13 5PG  
Please describe your computer

# Software for the BBC micro

# graphics ROM



3D-PLOTTING

CIRCLES & PATTERNS



INCLUDING  
**MULTI** SIZED COLOURED  
PATTERNEED CHARACTERS  
PRINTABLE

FAST LOGO GRAPHICS



## The Graphic Extension ROM for the BBC Micro 32K

Our latest utility ROM includes over 28 new graphics related commands. These can be typed in like any normal commands and can of course, be included in BASIC programs. The commands are split into 3 distinct areas:-

1. Sprite graphics  
These are multi-coloured shapes up to 24 x 24 pixels in size.  
Once a sprite has been designed (using in-built routine) it can be plotted at any position on the screen and easily moved around. A sprite can also be part of a 'film' — a sequence of frames allowing animation. Up to 32 sprites or 'films' can be active on the screen at any time. A 'film' can contain up to 47 frames, each frame being any sprite image.
2. LOGO 'turtle' graphics  
By using simple FORWARD, BACKWARD, LEFT and RIGHT commands a 'turtle' can be moved very quickly around the screen, producing intricate patterns by the most user-friendly means. Including these commands in structured BBC BASIC programs provides a system faster and more powerful than many of the packages currently used to demonstrate the LOGO language.
3. The third section consists of a large number of general purpose commands, such as:-  
★FILL which will fill ANY area on screen.  
Fast circle and arc drawing  
3D graphics routines allowing X, Y, Z co-ordinate plotting  
Large character printing in a range of patterns  
Scaling — allowing any part of the screen to be expanded or diminished  
A rotate command that will rotate all plotting by any angle around the origin  
Because this is a ROM, all the commands are instantly available, and has a built-in help menu showing the syntax of all commands. Supplied with a comprehensive manual and step-by-step fitting instructions, suitable even for the inexperienced. This ROM represents extremely good value for money.

Available directly from us, mail order only, or from all good dealers  
£28.00 plus £1.00 p&p plus VAT

**COMPUTER CONCEPTS**

CASH OR ROYALTIES. We specialise in quality software for the BBC machine and can offer the best rates around. We are always interested in obtaining new programs to add to our range and offer either a cash payment for the outright purchase or alternatively pay a royalty on each one sold.



16 Wayside, Chipperfield, Herts WD4 9JJ. Telephone (09277) 69727